March 8, 2011

Ms. Agnes Farres
Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Revised Closure Request for Four Former Fuel Distribution System Sections, Phase III
Area B, Presidio of San Francisco, California

Dear Ms. Farres:

The Presidio Trust (Trust) is submitting this revised closure request for four Phase III fuel distribution system (FDS) sections located within Area B of the Presidio in response to your July 27, 2010 comment letter, discussions at the August 31, 2010 meeting at your office, and your January 25, 2011 email. This closure request supersedes the Trust's October 7, 2009 request titled *Transmittal and Request for Closure of the Former Fuel Distribution System (FDS) Area B Phases III Field Sampling Report and Closure Report.* This closure request does not modify the field sampling report included in the October 7, 2009 transmittal.

REVISED CLOSURE SUBMITTAL

The closure submittal has been revised to include only those segments for which the Trust is requesting closure. Those segments are listed below.

FDS Sections in Area B Phase III Closure Group (RB2 Case No. 38D9330)	
BR5-2	MT-4
BR10-1	MT-9

As you requested, the report has been reorganized to include all documentation about each individual FDS segment in a separate appendix (separated by tabs in the hard copy version). For each FDS segment, the appendix contains a case closure summary, summary information from the Army's FDS removal report (text, tables, and figures), tables and figures from the Trust's sampling report, and if appropriate, additional segment-specific information to facilitate Water Board review and justification for closure.

A case closure summary has been prepared for each FDS section generally following Water Board format for petroleum sites. General and segment-specific comments from your July 27th

34 Graham Street, Post Office Box 29052, San Francisco, California 94129-0052
415/561-5300 Fax 561-5315 presidio@presidiotrust.gov

letter are addressed in these case closure summaries. The summaries review available site background and characteristics, remediation history, summary of data, and provide rationale for requesting closure.

Your July letter requested additional information on the Trust's evaluation of carcinogenic PAHs (cPAHs). In response to your comment, for each FDS segment where individual cPAHs were detected in soil samples above their respective individual cleanup level, the case closure summary includes a discussion of the potential risk associated with the detected concentration of the residual cPAHs (or potential concentration if the detection limit was elevated).

Water Board Order No. R2-2003-0080 (Order) provides a cleanup level based on total cPAHs. The basis for the total value is provided in a footnote as the sum of individual cPAHs. Because the Army did not analyze for individual cPAHs, the Army compared the results of PAH analyses to the value for total cPAHs, as stated in the Order. When the Trust conducted additional sampling, the Trust followed the same protocol when reviewing the sample PAH results, even though data for individual cPAHs were generally available. One of the FDS sections in Area B Phase III (section BR5-2) exceeded the cleanup level for total cPAHs provided in the Order. There are 3 FDS segments where individual cPAHs were detected above the individual cPAH value used to calculate the total cPAH cleanup level in the Order. In general, these represent isolated detections that do not pose a significant human health risk. The case closure summaries further discuss these detections.

Your July letter also requested additional information on the Trust's implementation of a Land Use Notification (LUN) in instances where soil with concentrations of TPH or total cPAHs above applicable cleanup levels has been left in place. A LUN, as described in the Trust Land Use Control Master Reference Report (LUCMRR) (Presidio Trust, 2009), is designed to notify present or future tenants, maintenance workers, landscaping/planting crews, or other entities of the presence and locations of residual chemicals of concern, debris fill, abandoned utilities, building foundations, or other such items left in place at a site. A LUN serves to notify about the existing site conditions and does not restrict land use. Where applicable, LUN areas are shown on figures included with individual FDS sections. Generally, for locations where a LUN is applicable, residual TPH in soil is located in inaccessible areas where further excavation is not possible, preventing residential exposure to residual TPH in soil. A LUN is proposed to facilitate Trust tracking of the residual TPH-impacted soil for maintenance and construction worker notification, in case the soil is exposed in future construction activities.

BACKGROUND OF FDS SYSTEM AND SITE INVESTIGATIONS

Circa 1900, the Army constructed the FDS to supply heating fuel to residential and administrative buildings located throughout the Presidio. The FDS network primarily transported heating oil, mostly fuel oil, to heat buildings. The Army's FDS pipeline removal index map (Figure 1) shows the FDS lines and section names. The FDS pipelines ranged between 2 and 6 inches in diameter. Unnamed lateral pipelines (laterals) extended off the main pipeline and fed approximately 300 USTs located within or near buildings heated by fuel oil.

The Army decommissioned the FDS from the early 1940's through the early 1960's but the piping remained in place. The Army conducted the FDS removal program from 1996 to 1999 under Water Board Order 96-070. Approximately 45,000 feet (ft) of FDS pipeline were removed. Sections that could not be removed (due to the locations of buildings or other obstructions) were generally pressure tested and capped at both ends. The removal program included the removal of all accessible lengths of pipeline, stockpile soil sampling, confirmation sampling along walls and floors of excavations, and sampling along lengths and at the ends of abandoned pipelines. Confirmation soil samples collected by the Army were generally analyzed on-site using immunoassay procedures, with ten percent of the soil samples sent to a fixed laboratory for confirmation of analytical results. The Army sample results are tabulated in tables and on figures in a report prepared by International Technologies, Inc. (IT) (copies of tables and figures are included in Attachment A for each FDS section).

As part of a remedial measure for petroleum sites presented in Water Board Order 96-070, petroleum-affected soil found to be above discharge requirements was either disposed offsite or treated using Low-Temperature Thermal Desorption (LTTD). LTTD-treated soil with sample results below discharge requirements was used in places to backfill FDS excavations to approximately 18 inches below ground surface (bgs). Imported topsoil was used to backfill the top 18 inches of the excavation. Analytical results for LTTD-treated soil are indicated on the profiles included in the Army's FDS removal figures (Attachment A). LTTD-treated soil has a distinct dark brown to blackish color that makes it readily distinguishable from native soil and import used to backfill trenches subsequent to FDS pipeline removal.

The Trust reviewed and conducted additional investigation where data gaps were identified in the Army's FDS removal efforts, per work plans subsequently approved by the Water Board (EKI, 2007; EKI, 2008; EKI, 2009c) for FDS assessment and closure. These investigations are documented in the February, March, and October 2009 FDS reports (EKI, 2009a; EKI, 2009b; EKI, 2009d). Data tables and figures from these reports have been compiled by FDS section and are included in Attachment A. The figures show soil data collected by the Trust since 2007 and Army data where results were above applicable cleanup levels.

JUSTIFICATION FOR CLOSURE

The basis for recommendation for closure for each individual FDS section is described in each section's site closure summary. The majority of the former FDS system has been removed, and remaining inaccessible pipelines have been capped. Based on soil and groundwater sampling by the Army and follow-up sampling by the Trust, the source of petroleum contamination has been removed. Residual TPH and cPAHs remain in soil at FDS section BR5-2. These residual concentrations are generally isolated and do not pose a significant human health or ecological risk. At section BR5-2, where residual TPH and cPAHs are present in soil above applicable cleanup levels, the Trust will implement a LUN as described in the Land Use Control Master Reference Report (LUCMRR) (Presidio Trust, 2009).

CONCLUSION

The Trust is requesting closure for these four FDS sections. If you have questions or need additional information regarding any of these FDS sections, please contact John DeWitt, the Trust's project manager, at (650) 292-9100 or me at (415) 561-4259.

Sincerely,

Eileen Fanelli

Eileen Fanelli
Remediation Program Manager

cc: Denise Tsuji, Department of Toxic Substances Control (electronic version only)
Brian Ullensvang, National Park Service (electronic version only)
RAB Members (Cover letter only)

Attachments

Table 1 – FDS Section Summary by Closure Group
Figure 1 – FDS Pipeline Removal Index Map
Attachment A – Site Closure Summaries and Documentation for FDS Sections

References

Erler & Kalinowski, Inc. (EKI), 2007. *Field Sampling Plan – Former Fuel Distribution System ("FDS") Closure Phases II and III, Presidio of San Francisco, California.* April.

EKI, 2008. *Field Sampling Plan Addendum No. 1 – Former Fuel Distribution System ("FDS") Closure Phases II and III, Infantry Terrace (FDS Section MT-14) Area, Presidio of San Francisco, California.* February.

EKI, 2009a. *Final Former Fuel Distribution System ("FDS") Phases II and III, Field Sampling Report and Phase II Area B Closure Report, Presidio of San Francisco, California.* February.

EKI, 2009b. *Final Former Fuel Distribution System ("FDS") Phases II and III, Field Sampling Report and Phase II Area A Closure Report, Presidio of San Francisco, California.* March.

EKI, 2009c. *Revised Field Sampling Plan Addendum No. 2 for Phase III Fuel Distribution System Investigation and Remediation.* April.

EKI, 2009d. *Final Former Fuel Distribution System ("FDS") Field Sampling Report and Phase III Area B Closure Report, Presidio of San Francisco, California.* October.

International Technology Corporation (IT), 1999. *Fuel Distribution System Closure Report, Presidio of San Francisco, California.* May.

Presidio Trust, 2009. *Presidio Trust Land Use Controls Master Reference Report, Presidio of San Francisco, California.* September.

Revised Closure Request for Four Former Area B Fuel Distribution System (FDS) Sections, Phase III

Presidio of San Francisco
California

March 2011

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

Erler & Kalinowski, Inc.
Consulting Engineers and Scientists
1870 Ogden Drive
Burlingame, CA 94010
(650) 292-9100
Fax (650) 552-9012

8 March 2011

Ms. Eileen Fanelli
The Presidio Trust
Post Office Box 29052
San Francisco, California 94129-0052

Subject: Revised Closure Request for Four Former Area B Fuel Distribution System Sections, Phase III
Presidio of San Francisco, California
(EKI A70004.16)

Dear Ms. Fanelli:

Erler & Kalinowski, Inc. ("EKI") is pleased to present to the Presidio Trust ("Trust") the attached report, entitled *Revised Closure Request for Four Former Area B Fuel Distribution System Sections, Phase III* and dated March 2011 ("Revised Area B FDS Closure Request"), which was prepared in accordance with our contract PT-2006-034.

The purpose of the Revised Area B FDS Closure Request is to present the rationale for requesting closure for the four Phase III FDS Sections in Area B of the Presidio that have met closure criteria. Each FDS section is discussed in a separate appendix. The appendix contains a case closure summary, summary information from the Army's FDS removal report, results from the Trust's sampling report, and if appropriate, additional segment-specific information to facilitate justification for closure. The October 7, 2009 *Transmittal and Request for Closure of the Former Fuel Distribution System (FDS) Area B Phases III Field Sampling Report and Closure Report* transmitted the results of that sampling event; this closure request supersedes the closure request in that report.

Please call if you have any questions.

Very truly yours,

ERLER & KALINOWSKI, INC.

John DeWitt, P.E.
Project Manager

Michelle King, Ph.D.
Vice President

Table 1
Fuel Distribution System (FDS) Section Summary by Closure Group
Presidio of San Francisco, California

FDS Closure Phase I	FDS Closure Phase II (Area B)	FDS Closure Phase II (Area A)	FDS Closure[(a)] Phase III (Area B)
(Closed 9/16/09)	• Initial Closure Request Submitted 2/18/09 • Revised Closure Request Submitted 3/2011	• Initial Closure Request Submitted 3/13/09 • Revised Closure Request Submitted 3/2011	• Initial Closure Request Submitted 10/7/09 • Revised Closure Request Submitted 3/2011
27 Sections	29 Sections	4 Sections	4 Sections
Area 5 Section A	BR1-1	BR9-1	BR5-2
Area 5 Section B	BR1-2	CF-4 (Commissary / PX CAP)	BR10-1
Area 5 Section C	BR2-2	CF-12 (Commissary / PX CAP)	MT-4
Area 5 Section D	BR3-1	MT-2	MT-9
Area 6 Section A	BR3-2		
Area 6 Section B	BR5-3		
BR2-1	BR6-1		
BR2-3	BR6-3		
BR3-3	BR6-5 (Commissary / PX CAP)		
BR3-4	BR7-1		
BR3-5	BR7-2		
BR4-1	BR8-1 (1065 CAP)		
BR6-2	BR10-2		
BR6-4	BR10-3		
BR11-1	BR12-1		
BR14-1	BR13-1		
CF-1	BR13-2		
CF-2	BR15-1		
CF-3	BR16-1		
CF-6	MT-3		
CF-7	MT-5		
CF-8	MT-10		
CF-9	MT-11		
CF-10	MT-12		
CF-11	MT-13		
MT-1	MT-14		
MT-8	MT-15		
	MT-16		
	MT-17		

Notes:
(a) FDS Sections MT-6 and MT-7 are included in the 1349 Corrective Action Plan Closure Request.

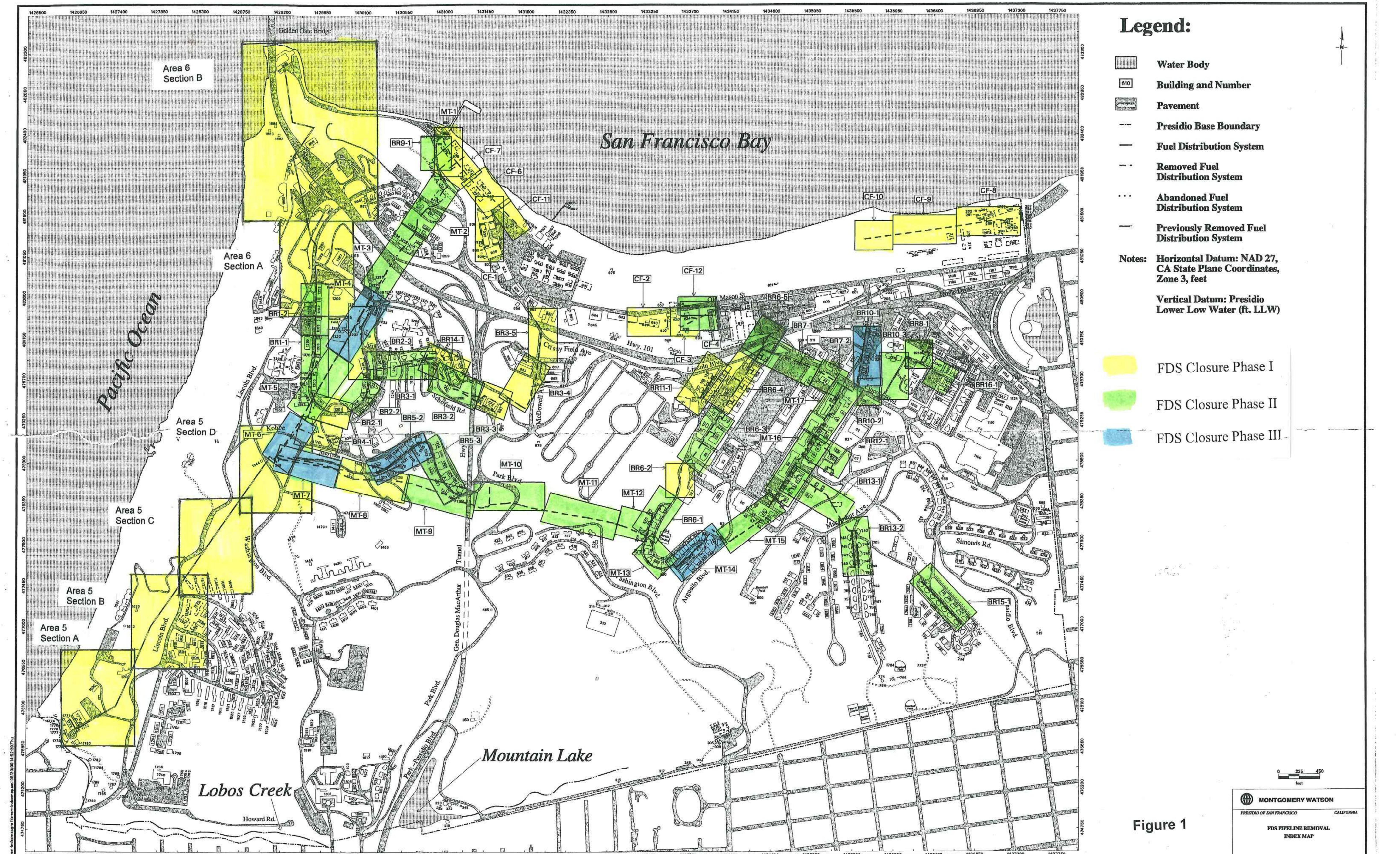

Legend:
Water Body
Building and Number
Pavement
Presidio Base Boundary
Fuel Distribution System
Removed Fuel Distribution System
Abandoned Fuel Distribution System
Previously Removed Fuel Distribution System
Notes: Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet
Vertical Datum: Presidio Lower Low Water (ft. LLW)
FDS Closure Phase I
FDS Closure Phase II
FDS Closure Phase III
San Francisco Bay
Pacific Ocean
Golden Gate Bridge
Mountain Lake
Lobos Creek
Area 6 Section B
Area 6 Section A
Area 5 Section D
Area 5 Section C
Area 5 Section B
Area 5 Section A
Lincoln Blvd.
Washington Blvd.
Park Blvd.
Crissy Field Ave.
Hwy. 101
McDowell Ave.
Schofield Rd.
MacArthur Ave.
Simonds Rd.
Arguello Blvd.
Gen. Douglas MacArthur Tunnel
Park Presidio Blvd.
Howard Rd.
Mason St.
MONTGOMERY WATSON
PRESIDIO OF SAN FRANCISCO
CALIFORNIA
FDS PIPELINE REMOVAL INDEX MAP

Figure 1

Attachment A

Site Closure Summaries and Documentation for FDS Sections

A-1: BR5-2

A-2: BR10-1

A-3: MT-4

A-4: MT-9

Attachment A-1

BR5-2

Site Closure Summary

Fuel Distribution System Area B Phase III, Presidio of San Francisco, San Francisco, California

I. AGENCY INFORMATION

Agency Name: S.F.B.R.W.Q.C.B.	Responsible Staff Person: Agnes Farres
Address: 1515 Clay Street, Suite 1400	Title: Environmental Scientist
City/State/Zip: Oakland, California 94612	Phone: 510-622-2401

II. SITE INFORMATION

Site Facility Name: FDS Area B, Presidio of San Francisco		Is the Site in a Residential Area?	Yes
RB/SMS Case No.:	38D9330	Is the Site Designated for Unrestricted Use?	Yes

Responsible Parties:
Presidio Trust
Attn.: Eileen Fanelli, Remediation Program Manager
P.O. Box 29052
San Francisco, California 94129-0052
Telephone No.: 415-561-4259

Section Number:	BR5-2	Contents:	Fuel Oil
Removal Status:	Removed with documentation	Length Removed (ft):	995
Removal Date:	6/10/1997	Length Abandoned in Place (ft):	45
		Diameter (inches):	4

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release:
Fuel Distribution System piping release

Site characterization complete?	Yes	Most Sensitive Current Use:	Residential
Monitoring wells installed?	No	Most Sensitive Potential Use:	Residential
Number:	0	Are Drinking Water Wells Affected?	No
Proper Screened Interval?	N/A	Aquifer Name:	N/A
GW Depth Below Ground Surface:	>20	Is Surface Water Affected?	No
		Nearest/Affected SW Name:	SF Bay
Groundwater Basin or Area:	Marina	Is the Freshwater Zone Affected?	No

Off-Site Beneficial Use Impacts (Addresses/Locations):
None

Report on file?	Yes
Where is report(s) filed?	SF Bay Water Board, Oakland, CA
Lead Agency Name:	RWQCB

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)		Action (Treatment of Disposal w/ Destination)	Date
Pipe	995	ft	Excavate and dispose	6/10/1997
Soil	21	cy	Excavate and treat	6/10/1997

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Maximum Documented Pollutant Concentrations Before and After Cleanup:
See Attached Tables

Background:
The predominant features in Section BR5-2 are residential buildings, landscaped lawns, and gently sloping terrain. The piping consisted of a main pipeline and a secondary, roughly parallel, pipeline. The main pipeline trended to the northeast along Hitchcock Street, with lateral pipes serving each of the residences in Section BR5-2; the secondary pipeline extended from Station 04+00 to the west side of Building 1328.

The main and secondary pipelines were removed in separate trenches. The Army removed a total of approximately 995 ft of 4 inch diameter piping and abandoned approximately 45 ft of lateral piping to Buildings 1324, 1326, and 1328. All abandoned lateral piping segments were less than 20 ft long, and therefore, no pressure testing was conducted. The Army collected soil samples from the trench and one stockpile. The sample locations are shown on IT's figure and the data are presented in IT's Table 33-2 and 33-3.

Groundwater is present only within bedrock fractures in this area and was not encountered during excavation. To address potential TPH impacts to groundwater, two borings were drilled on 19 May 2009. In accordance with the field sampling plan, the borings were drilled to 20 feet bgs, but no groundwater was encountered. Therefore, no groundwater samples were collected and no data are available. During the installation of nearby monitoring well LF4GW105, in 2003, groundwater was encountered at approximately 42 ft bgs.

Excavation and Remediation:

Trench Length (feet):	990	Was there LTTD in Backfill?:	Yes
Trench Width (feet):	3	Volume LTTD in Backfill (CY):	18
Trench Depth (feet):	2.5	Was there Overburden in Backfill?:	Yes
Excavated and Treated Volume (CY):	21		
Leakage Evidence:	Contaminated soil was encountered during excavation.		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavation and Remediation (continued):

The Army collected 13 trench soil samples per 995 ft of piping removed from Section BR5-2, satisfying the required frequency of 1 sample per 100 ft of trench, and included samples collected at each change in direction. One soil sample was collected at the end of each of the abandoned laterals. One 4-point composite soil sample was collected from the stockpiled excavated soil. The Army conducted a remedial excavation (21 cy) between Stations 08+00 and 09+00 on Hitchcock Street south of Building 1324. Four soil samples were collected along 20 linear ft of the remedial excavation, satisfying the required frequency of 2 samples per 15 linear ft of excavation. Excavated soils were transported to the LTTD unit for treatment.

Immunoassay tests indicated that concentrations of petroleum hydrocarbons and PAHs in confirmation soil samples were below applicable cleanup levels, with the exception of soil sample FB05006L01 collected at the southern end of a lateral entering Building 1328. TPH concentrations in sample FB05006L01 (>1,420 mg/kg) exceeded applicable cleanup levels. Further excavation in this area was not conducted due to concerns that it could jeopardize the integrity of an adjacent corroded natural gas line. Additionally, the detection limit for soil sample FB05007T01 (located at the intersection with the lateral to Building 1326) was above the cleanup levels for petroleum hydrocarbons. The Army backfilled the trench using overburden soil to 18 inches bgs and topsoil to ground surface. The remedial excavation was backfilled with LTTD-treated soil to ground surface.

The Trust review of Army results indicated that PAH and TPH concentrations in confirmation soil samples exceeded cleanup levels in the vicinity of Building 1328, and TPH concentrations at the lateral near Building 1326 may have potentially exceeded cleanup levels. Additionally, the stockpiled soil was inadequately sampled and it is uncertain whether LTTD-treated soil or stockpiled soil potentially above cleanup levels was used to backfill the trench between Station 9+00 and Station 11+00.

In 2004, as part of a Trust utility upgrade project, Treadwell & Rollo collected five native soil samples and one duplicate sample from five locations along Section BR5-2 (locations 1326FDSEX101 through 1326FDSEX105). One sample (1326FDSEX101[2]) contained TPHd and TPHfo at concentrations greater than the applicable cleanup levels (Treadwell & Rollo Table 1 and Figure 2).

In September 2007, the Trust collected seven native soil samples, including one duplicate sample, and two overburden soil samples from eight locations along Section BR5-2 (locations BR5-2SB01 through BR5-2SB08) (Figure 7). The soil samples were analyzed for TPH and/or PAHs (Tables 4 and 6). Two native soil samples from locations BR5-2SB04 and BR5-2SB05 contained TPH and individual PAHs (and total cPAHs at BR5-2SB04) above residential cleanup levels. An overburden soil sample from location BR5-2SB08 had TPHfo concentrations above the applicable cleanup level and an elevated detection limit of 2.7 mg/kg, above individual cleanup levels for some PAHs, including benzo(a)pyrene. The maximum benzo(a)pyrene concentration was detected in soil sample BR5-2SB04 at 1.5 mg/kg.

In May 2009, the Trust drilled borings on two sides of Building 1326 to evaluate depth to groundwater and potential groundwater impacts. The borings were both advanced to 20 ft bgs, but groundwater was not encountered. In accordance with the field sampling plan, the borings were grouted and no samples were collected because impacts to groundwater were unlikely at depths greater than 20 ft bgs

Reasons for any Abandoned Piping:

The pipe lengths were laterals to buildings.

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Conclusion:

Concentrations of TPH and some PAHs in soil samples representative of soil remaining in place (locations BR5-2SB04, BR5-2SB05, FB05006L01, 1326FDSEX101, and BR5-2SB08) are above applicable cleanup levels. Further excavation in the Building 1328 area is limited by an adjacent corroded natural gas line. These locations are under pavement, thereby limiting access by human and ecological receptors to underlying soil impacted by TPH and PAHs. The lack of groundwater within 20 feet of the surface at FDS Section BR5-2 suggests that the potential for residual TPH impacts from soil to groundwater are minimal. A land use notification for health and safety requirements and soil management requirements will be prepared for the three areas where soil remaining in place exceeds cleanup levels (adjacent to the south sides of Buildings 1326 and 1328, and near the eastern corner of Building 1320).

No further action is recommended for the remainder of the section.

Additional Comments:

None

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?	Yes
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?	Yes
Does corrective action protect public health for current land use?	Yes
Site Management Requirements: Land use notification for health and safety requirements and soil management requirements recommended for the site.	
Monitoring Wells Decommissioned: N/A Number Decommissioned: N/A Number Retained: N/A	
List Enforcement Actions Taken: Regional Water Quality Control Board, Order No. R2-2003-0080.	
List Enforcement Actions Rescinded: None	

V. DOCUMENTS ASSOCIATED WITH SITE

EKI, February 2009. Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report, Presidio of San Francisco, California.

EKI, October 2009. Former Fuel Distribution System ("FDS") Area B, Phase III, Field Sampling and Closure Report.

International Technology Corporation, May 1999. Fuel Distribution System Closure Report, Presidio of San Francisco, California,

Regional Water Quality Control Board, Order No. R2-2003-0080.

Treadwell & Rollo, Inc., March 2004. Soil Sampling Results, Building 1326 Fuel Distribution System Pipeline, Presidio of San Francisco.

FUEL DISTRIBUTION SYSTEM REMOVAL REPORT
PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Contract No. DACW05-95-D-0001
Task Order No. 0005
Work Authorization Directive No. 36

Submitted to:

Department of the Army
U.S. Army Corps of Engineers
Sacramento District
1325 "J" Street
Sacramento, California 95814-2922

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

FINAL

May 1999

Issued to:_____Date:_____

33.0 Section BR5-2 (Station 04+00 to 11+00)

33.1 Introduction

Section BR5-2 is located in the west-central portion of the Presidio. A section map and photographs of work conducted at Section BR5-2 are provided as Figures 33-1 and 33-2, respectively.

The predominant features of Section BR5-2 are Hitchcock Street, residential buildings, landscaped lawns and gently sloping terrain.

The FDS piping within Section BR5-2 was oriented generally to the east. The piping consisted of a main pipeline and secondary, roughly parallel pipeline from Station 04+00 to the west side of Building 1328. The main pipeline trended to the northeast along Hitchcock Street, with lateral pipes serving each of the residences in Section BR5-2.

Soil Description: Soils in the vicinity of Section BR5-2 consist of undifferentiated sheared rocks (MW, 1995a). Field observations indicated that these strata were overlain by a thin layer of silty sand with some clay.

Groundwater Information: Groundwater is present only within bedrock fractures in the vicinity of Section BR5-2 (MW, 1995d). Section BR5-2 is located within the Marina Groundwater Basin. The northwestern part of Section BR5-2 borders on the West Valley Groundwater Area (MW, 1995d).

33.2 Site Cleanup Requirements

Based on land use at Section BR5-2, SALs for petroleum hydrocarbons and PAHs related to residential and terrestrial ecology criteria are shown in Table 33-1.

33.3 FDS Excavation

A total of approximately 1,040 ft of 4-inch diameter piping was removed or abandoned in Section BR5-2. Details on the pipeline, trench and remedial excavation are discussed below.

33.3.1 Pipeline Removal and Abandonment

Details on pipeline removal and abandonment in Section BR5-2 are as follows:

Removal: The main FDS, secondary FDS, and lateral piping to Building 1330, totaling approximately 995 ft, were removed.

Abandonment: Lateral piping to Buildings 1320, 1322, 1324, 1326 and 1328 was abandoned in place. This piping totaled approximately 45 ft. All abandoned lateral piping segments were shorter than 20 ft; therefore, no pressure testing was conducted.

33.3.2 Trench Excavation

Details on the trench excavation and backfill are as follows:

Trench dimensions: The two FDS pipelines in Section BR5-2 were removed from separate trenches from stations 04+00 to 06+70 and a single trench from stations 06+64 to 11+00. The total length of trenching in Section BR5-2 was 990 ft. The width and depth of the trenches averaged 3.0 ft and 2.5 ft, respectively.

Backfill Information: With the exception of the remedial excavation adjacent to Building 1324, the trenches were backfilled using overburden materials to 18 inches bgs and imported topsoil to the ground surface.

33.3.3 Remedial Excavations

Details on remedial excavations in Section BR5-2 are as follows:

Station Range: A remedial excavation was conducted between stations 08+00 and 09+00 in Hitchcock Street south of Building 1324 (Figure 33-3).

Final Excavation Dimensions: The average dimensions of the excavation in Hitchcock Street were 20 ft long by 6 ft wide by 4 ft deep.

Description of Excavation: Approximately 21 yd^3 of soil were removed during the remedial excavation. Following completion of excavation, soil samples were collected from the floor and sidewalls of the excavation. Soil analytical results are discussed in Section 33.4. Excavated soil was transported to the LTTD unit for treatment. The excavation was backfilled using treated soils from the LTTD unit.

33.4 Soil Analytical Results

A list of soil samples that represent soil that remains in place after piping removal/abandonment and remedial excavations, corresponding and corresponding sample depths and analytical results are provided in Table 33-2.

33.4.1 Immunoassay Analytical Results

Results of immunoassay analysis of soil samples for petroleum hydrocarbons and PAHs are provided in Table 33-2. The analytical results indicate that concentrations of petroleum hydrocarbons and PAHs in soils remaining in place are below SALs with the exception of a sample FB05006L01 collected at the south end of a lateral entering Building 1328, near a corroded natural gas line.

The detection limit for sample FB05007T01, collected at the intersection with the lateral to Building 1326, was above the SAL for diesel-range petroleum hydrocarbons.

33.4.2 Laboratory Analytical Results

No samples representing soil remaining in place in Section BR5-2 were submitted to an off-site laboratory for analysis. Ten percent of the total number of samples collected from all FDS sections were submitted to an off-site laboratory for analysis.

33.4.3 Stockpile Analytical Results

Approximately 275 yd^3 of soil were excavated from the trench in Section BR5-2. Analytical results of a 4-point composite soil sample collected from the stockpiled soil located at station 06+00 are provided in Table 33-3. Discharge criteria for reuse of stockpiled soil are discussed in Section 3.4.3.

Analysis of the stockpile sample indicated that petroleum hydrocarbon and PAH concentrations were below discharge criteria. This stockpiled soil was used as backfill in the trench.

33.5 Conclusions/Recommendations

The following is a summary of the closure criteria specifications for Section BR5-2 of the FDS:

- Thirteen soil samples were collected per 995 ft of piping removed, satisfying the required frequency of 1 sample per 100 ft of trench, and samples collected at each lateral and change in direction.
- No pressure tests were required on the 5 short lengths of abandoned FDS piping in BR5-2. O ne 4-point composite soil sample was collected at each of the abandoned laterals (5 samples per 45 ft of abandoned piping). Because the individual segments are shorter than 20 ft, these samples meet the sampling requirements for abandonment
- One soil sample was collected per 275 yd^3 of stockpiled soil. Overburden soil used as backfill in the excavation trench was below the discharge criteria for petroleum hydrocarbons and PAHs based on analytical results.
- Four soil samples were collected along 20 linear ft of the remedial excavation, satisfying the required frequency of 1 sample per 15 linear ft of excavation.
- Concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) and PAHs for soil remaining in place are below the SALs with the exception of a sample FB05006L01, collected at the south end of a lateral entering Building 1328. Further excavation in this area could jeopardize the integrity of an adjacent corroded natural gas line.

The detection limit for sample FB05007T01 was above the SAL for petroleum hydrocarbons for that location (at the intersection with the lateral to Building 1326).

In accordance with the BWCAP, a mini-CAP is recommended for the laterals entering Buildings 1326 and 1328. No other action is recommended for Section BR5-2.

Table 33-1
Soil Action Levels, Section BR5-2
Fuel Distribution System Removal Report

Presidio of San Francisco

Target Compound	Soil Action Level (mg/kg[a])	Criteria
Depth Range: 0-3 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	700	Ecological (terrestrial)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	980	Ecological (terrestrial)
Total Carcinogenic PAHs[b]	5.6	Human health (residential)
Depth Range: 3-10 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	1,380	Human health (residential)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	1,900	Human health (residential)
Total Carcinogenic PAHs	5.6	Human health (residential)

[a]mg/kg - milligrams per kilogram
[b]PAHs - Polycyclic Aromatic Hydrocarbons

checked by: Tom Berg 4/14/99
approved by: [signature] 5.20.99

Table 33-2
Excavation Soil Analytical Results, Section BR5-2
Fuel Distribution System Removal Report

Presidio of San Francisco

Sample Designation	Depth[a] (feet)	Collection Date	Total Petroleum Hydrocarbons by Immunoassay (mg/kg[b])	Total Polycyclic Aromatic Hydrocarbons by Immunoassay (mg/kg)
FB05004L01	2.5	5/19/97	<115	<5.0
FB05004L03	3.0	5/27/97	<115	<5.0
FB05004L04	3.0	5/27/97	<115	<5.0
FB05005T02	2.5	5/14/97	<115	<5.0
FB05006L01	2.0	5/6/97	**>1,420**[c]	>5.0
FB05006T01	2.0	4/28/97	<575	<5.0
FB05006T02	2.5	4/29/97	115	<5.0
FB05007T01	2.5	5/5/97	<1,420	<5.0
FB05008T01	5.0	5/30/97	<1,380	<5.0
FB05008T02	5.0	6/9/97	<1,380	<5.0
FB05008W01	4.0	6/10/97	<115	<5.0
FB05008W02	5.0	6/10/97	<115	<5.0
FB05009L01	2.5	6/2/97	<115	<5.0
FB05010L01	2.0	6/5/97	<115	<5.0
FB0505T01	2.0	4/23/97	<115	<5.0

[a]Depth - Sample depth in feet below original ground surface
[b]mg/kg - milligrams per kilogram
[c]bold text indicates concentration exceeds Soil Action Level

checked by: C. P. 5/24/99

approved by: [signature] 5-21-99

Table 33-3
Stockpile Soil Analytical Results, Section BR5-2
Fuel Distribution System Removal Report

Presidio of San Francisco

Sample Designation	Collection Date	Total Petroleum Hydrocarbons by Immunoassay (mg/kg[a])	Total PAHs[b] by Immunoassay (mg/kg)
FB05060S01	06/17/97	<62.5	<1

[a]mg/kg - milligrams per kilogram
[b]PAHs - polycyclic aromatic hydrocarbons

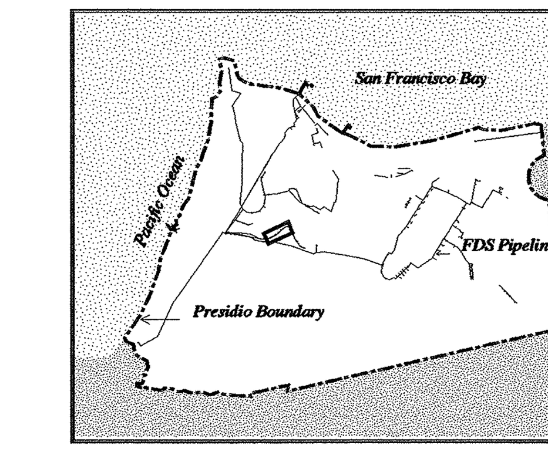
checked by: Tom Burg 7/14/99

approved by: [signature] 5.20.99

MATCH LINE BR5 STA. 4+00, SEE SHEET BR5-1

MATCH LINE BR5 STA. 11+00, SEE SHEET BR5-3

PLAN VIEW



FDS INDEX MAP (DRAWN AT 1' = 60,000')

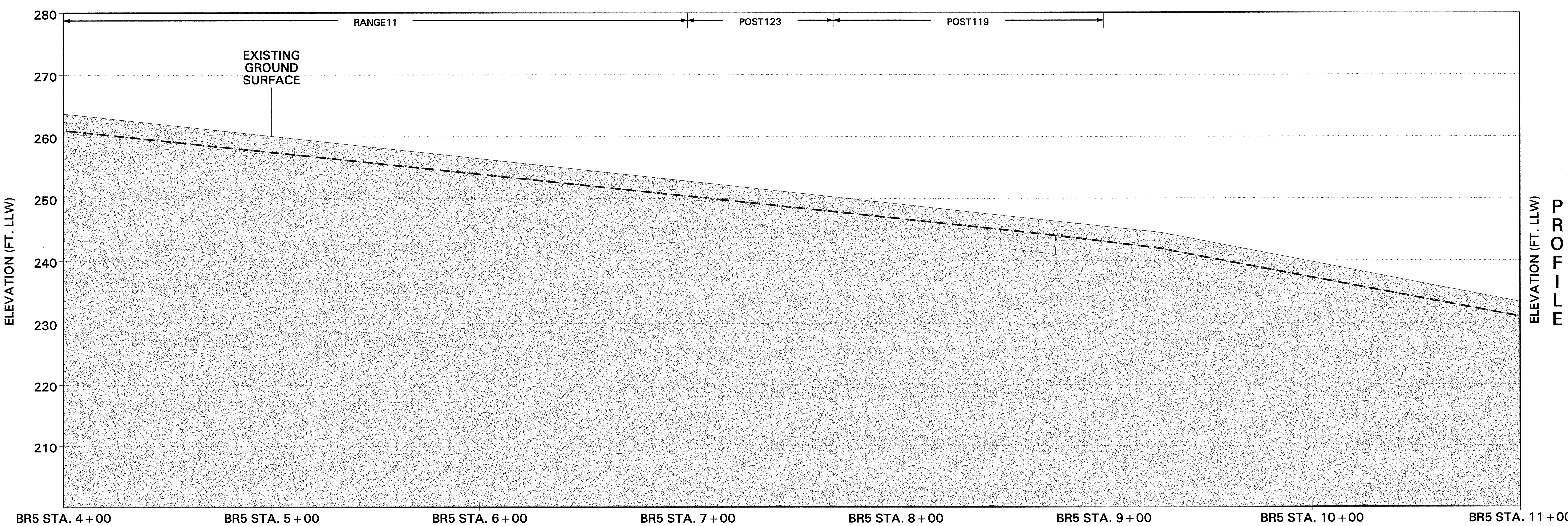
Legend:

E	Electric Line
G	Gas Line
IRR	Irrigation Line
SD	Storm Drain Line
SS	Sanitary Sewer Line
T	Telephone Line
W	Water Line
CT	Cable TV Line
FO	Fiber Optic Line
SL	Street Light Line
U	Unknown Line
XA	Abandoned Utility Line Letter Designates Utility Type A Designates Abandoned
	Pavement
	Building and Identification No.
	Excavation
	Limit of Excavation
	Removed FDS Pipeline
	Abandoned In Place FDS Pipeline
	Previously Removed FDS Pipeline
	Topographic Contour (Contour Interval: 5ft.)
	Fence
	Removed Structure (except tanks)
▲	Soil Sample
FB0112T02	Soil Sample Identification No.
POST018	LTTD Soil Sample Identification No.
NA	Not Analyzed
NAP	Not Applicable
SAL	Soil Action Level Established in SCRs (RWQCB, 1996)
RS	Immunoassay Result Superseded by Laboratory PAH Analysis

Notes:

1. Vertical Datum: Presidio Lower Low Water (LLW)
2. All concentrations in mg/kg unless noted otherwise
3. The area around removed pipeline was excavated to a width of 2.5-5 ft.
4. All soil samples collected from the final limit of excavation
5. If no LTTD sample identification no., trench backfilled with clean fill
6. Excavations backfilled with thermally treated soils (See table below for analytical results)

0 15 30
feet



PROFILE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 10'

PROFILE DOES NOT SHOW PREVIOUSLY ABANDONED PIPELINE.

LTTD Soil Sample Analytical Results

Analyte (unit of measure)	POST119	POST123	RANGE11
Total Petroleum Hydrocarbons (mg/kg)	25.3	15	15 - 52
BETX (mg/kg)			
Benzene	<0.006	<0.006	<0.006
Ethylbenzne	<0.006	<0.006	<0.006
Toluene	<0.006	<0.006	<0.006
Xylenes (total)	<0.006	<0.006	<0.006
Total Carcinogenic PAHs (mg/kg)	NA	0.297	0.297 - 1.81
Immunoassay-PAHs (mg/kg)	<5.6	RS	<5.6
SPLP (µg/l)			
Diesel Range	NA	<50	<50
Gasoline Range	NA	<50	<50
Benzene	NA	<0.5	<0.5
Ethylbenzene	NA	<0.5	<0.5
Toluene	NA	<0.5	<0.5
Xylenes (m&p-)	NA	<0.5	<0.5
Xylenes (o-)	NA	<0.5	<0.5

RANGE 11 = Postpiles 088, 123, 146

REVISION	DATE	DESCRIPTION	BY	BY
1	04-02-99	FDS PIPELINE REMOVAL, SUBMITTAL TO USACE		

MONTGOMERY WATSON

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: E. MAKHLOUF
DRAWN: I. KENNEDY
CHECKED:

PRESIDIO OF SAN FRANCISCO *CALIFORNIA*

REMOVAL / ABANDONMENT OF FUEL DISTRIBUTION SYSTEM PIPELINE
AS-BUILT
BR5 STATION 4+00 TO 11+00

SUBMITTED:
DATE APPROVED:
SCALE:
SPEC. No.
SHEET BR5-2
FILE No.

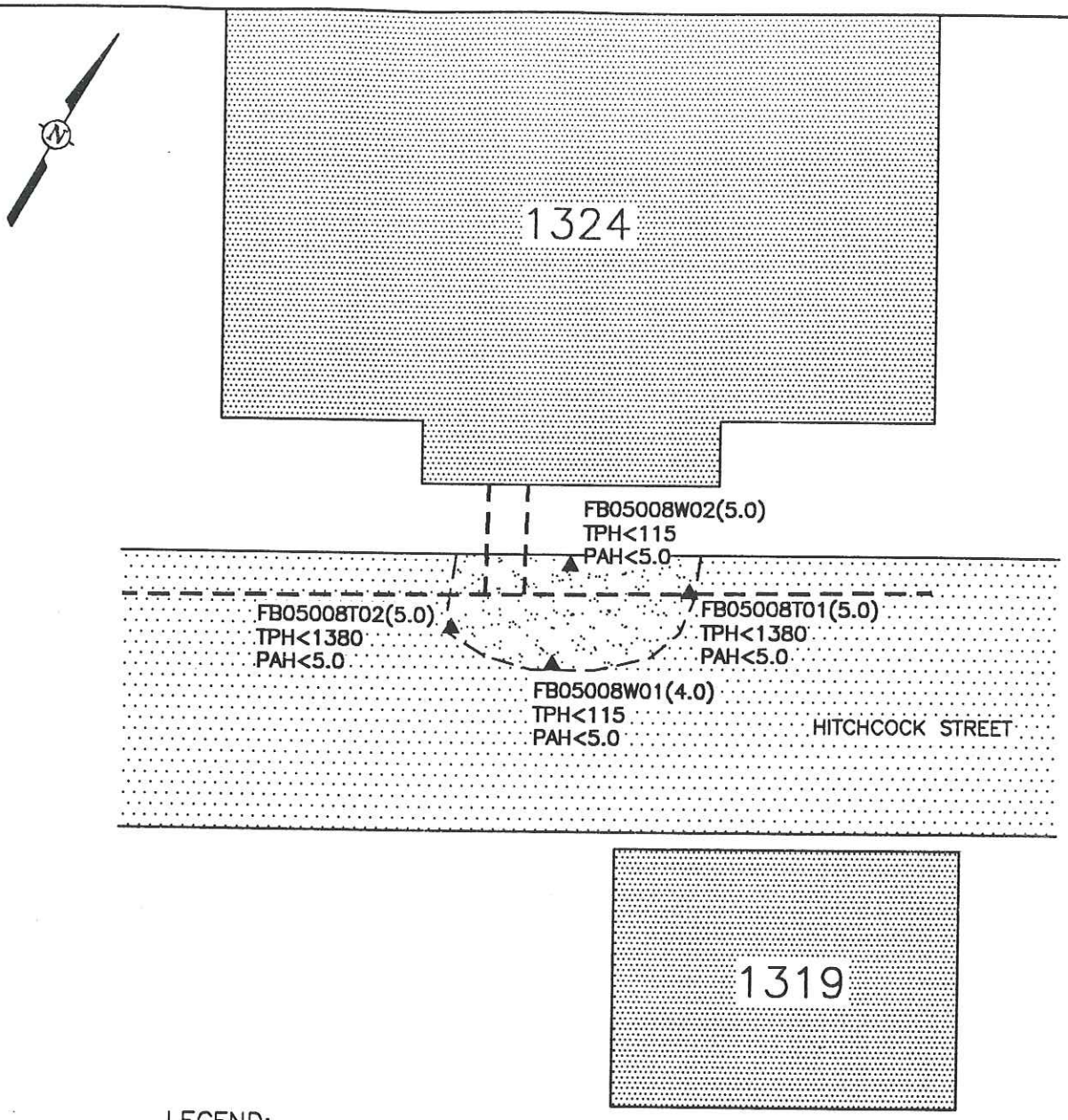
Figure 33-2 - Photographs, Section BR5-2

Date: May 28, 1997

Looking east at an uncovered FDS pipeline with an adjacent natural gas line. Building 1322 is to the left.

Date: May 14, 1997

Looking northwest into the courtyard of Building 1330, with Hitchcock Street in the foreground. Trench plates used to cover open excavations are seen at center.



LEGEND:

PAVEMENT

1324 — BUILDING AND IDENTIFICATION NO.

EXCAVATION

LIMIT OF EXCAVATION

REMOVED FUEL DISTRIBUTION SYSTEM PIPELINE

SOIL SAMPLE

FB05008W01(4.0) — SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)

SCALE

0 15 30 FEET

NOTES:

1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – TOTAL POLYCYCLIC AROMATIC HYDROCARBONS

FIGURE 33–3

SECTION BR5–2
EXCAVATION SOUTH OF
BUILDING 1324

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION

PREPARED FOR	PRESIDIO OF SAN FRANCISCO USACE SACRAMENTO DISTRICT TERC	CONTRACT NUMBER	DACW05-D-95-0001 D.O. 0005, WAD 36	DRAWN BY	RDB 4/15/99	CHECKED BY	DEG 5-14-99	DRAWING NUMBER	762491-A687
						APPROVED BY	RL 5-20-99		

c:\dwgs\fds\esob1324

8 March 2004

Mr. James Ponton
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Mr. Robert Boggs
California Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

Re: **Soil Sampling Results, Building 1326 Fuel Distribution System Pipeline**
Presidio of San Francisco

Dear James and Robert:

Enclosed, please find the letter report *Soil Sampling Results, Building 1326 Fuel Distribution System Pipeline* prepared by Treadwell & Rollo (T&R) for the Presidio Trust. This letter report describes the sampling activities and analytical results to investigate a petroleum impacted area discovered during Trust utility upgrade work.

Please call me at 415-561-4272 if you have any questions or comments.

Sincerely,

Jennifer A. Yata
Environmental Remediation Specialist

CC: Brian Ullensvang, National Park Service
Mark Youngkin, Restoration Advisory Board
Doug Kern, Restoration Advisory Board

34 Graham Street, Post Office Box 29052, San Francisco, California 94129-0052
415/561-5300 Fax 561-5315 presidio@presidiotrust.gov

Treadwell&Rollo

8 March 2004
Project No. 2893.15

Ms. Jennifer Yata
The Presidio Trust
1750 Lincoln Avenue
San Francisco, CA 94129

Subject: Soil Sample Results
Building 1326 Fuel Distribution System Pipeline
Presidio of San Francisco, California

Dear Ms. Yata:

Treadwell & Rollo, Inc. (Treadwell &Rollo) is pleased to submit the results of the soil sampling performed during a recent utilities installation construction project adjacent to Building 1326 at the Presidio of San Francisco (Figure 1). The following is a brief description of the sampling program results. The sampling and analyses were conducted in accordance with Treadwell & Rollo's proposal dated 10 October 2003 and the Presidio-wide Quality Assurance Project Plan and Sampling and Analysis Plan (QAPP) (Terra Tech, 2001).

Background

On 9 October 2003, Treadwell & Rollo visited the Site with Ms Yata, to observe site conditions and discuss the proposed scope of work. The Presidio Trust (Trust) had just completed excavating a trench in Hitchcock Street for the installation of new utility conduits (Figure 2). The trench is approximately four feet deep and four feet wide (Photograph 1). The trench floor, southern sidewall, and lower half of the northern sidewall are comprised of highly weathered, highly fractured native serpentine bedrock. A disturbed gray brown silty sandy gravelly trench backfill material is visible along the upper half of the north trench sidewall. Located at the bottom of the fill, at a depth of approximately two feet below ground surface (bgs) is a lens of light brown medium-grained, poorly graded sand (SP) (Photograph 2). Ms. Yata indicated that this disturbed soil and sand was the trench backfill and pipeline bedding of a Pacific Gas & Electric (PG&E) high pressure natural gas pipeline located immediately north and parallel to the new utility trench. The exposed bedding sand lens varies in thickness from ½-inch to 2-inches. A localized area of the bedding sand, adjacent to Building 1326, appeared to be impacted with a heavy tar-like oily material (Photograph 3). The impacted area is approximately 80 feet in length (Figure 2).

Ms. Yata explained that in 1998, as part of the US Army base-closure environmental activities, many of the Presidio's Fuel Distribution System (FDS) pipelines were systematically removed. One section of the FDS pipeline was removed along the northern side of Hitchcock Street (Figure 2). This pipeline removal action was performed between the PG&E gas pipeline and the northern curb of Hitchcock Street. The activities performed during the FDS pipeline removal for

this section along Hitchcock Street are documented in *FDS Pipeline Removal Report, Presidio of San Francisco, California, Volume 2* (IT Corporation, 1999). The trench for the FDS removal was approximately 3 feet deep and 3 feet wide. Following the pipeline removal and limited soil sampling, the trench was backfilled. Thus, the source of the heavy tar-like hydrocarbons found in the PG&E gas pipeline bedding sand is likely residual oil from the former FDS pipeline.

As presented in our proposal, collection of soil samples at five locations was proposed. The locations were selected to document the hydrocarbon concentrations within the bedding sand and assess the potential for the petroleum hydrocarbons to migrate into deeper native subsurface material.

Summary of Field Activities

On 14 October 2003, five primary and one duplicate soil samples were collected from the sidewall of the open utility trench (Figure 2). The samples were collected at two depths: from the bedding sand at 2 feet bgs, and from within the native weathered serpentine in the trench sidewall at 3 feet bgs.

To obtain samples of the oily-tar bedding sand, the soil samples were collected by repeatedly scrapping the sand lens with a clean, 6-inch long by 2-inch diameter stainless-steel sample tube along a 6-inch length of the sand lens until the tube was filled. The sample tubes ends were then sealed using Teflon™ sheeting and plastic end caps, labeled and placed in an ice-chilled cooler. The sidewall samples were collected using a slide-hammer sampler lined with a single clean, 6-inch long by 2-inch diameter stainless-steel sample tube. The sampler was driven into the native material perpendicular to the sidewall and retrieved. The sample tubes ends were then sealed using Teflon™ sheeting and plastic end caps, labeled and placed in an ice-chilled cooler.

Measurements of the potential organic vapors for each of the samples collected were recorded using a photoionization, organic vapor meter (OVM). A portion of the sample was set aside in a Zip-lock™ plastic bag and sealed. The sample was crumbled inside the bag and allowed to set. The probe of the OVM was inserted into plastic bag and the measurements recorded.

In accordance with the QAPP, in addition to the Quality Control (QC) duplicate sample (DUP101403A), an equipment rinsate blank (for non-disposable equipment) was collected and analyzed. The duplicate sample (DUP101403A) was collected to the east, immediately adjacent to primary soil sample 1326FDSEX105[3] at a depth of 3 feet bgs. The field equipment rinsate sample was collected from the cleaned slide-hammer sampler between the collection of primary soil sample 1326FDSEX105 and the duplicate sample.

The sample locations were surveyed using the Trust's Trimble GPS unit immediately following the sample collection on 14 October 2003 (Photograph 4). The resulting holes from the soil

sampling were left open in the trench sidewalls until filled during the backfill of the trench. No soil cuttings were generated during the soil sampling activities. Decontamination wash water was transported to temporary water storage tanks located at the Central Magazine pending waste characterization and disposal by the Trust.

Analytical Program

The samples were submitted to Curtis & Tompkins, Ltd., a California-certified analytical testing laboratory. The chemical analytical program included:

- Total petroleum hydrocarbons as diesel fuel (TPHd) (C_{12}-C_{24} carbon range), total petroleum hydrocarbons as fuel oil (TPHfo) (C_{24}-C_{36} carbon range) by EPA Method 8015M, and
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) / methyl tert-butyl ether (MTBE) by EPA Method 8020.

Soil samples analyzed for TPH were prepared using silica gel clean-up (EPA Method SW3630A). All samples were handled and transported under chain-of-custody protocol. All samples were stored on crushed ice for delivery to the laboratory.

In accordance with the QAPP, data validation was performed by DataVal located in San Rafael, California. DataVal's report is attached. The data validation results indicate that no qualification of the analytical data was required.

Discussion of Results

A summary of the subsurface material sampled, the depth to groundwater, and the analytical results for Building 1326 FDS soil sampling are presented below. The laboratory report is attached.

Soil samples 1326FDSEX101[2] and 1326FDSEX102[2] were collected from the impacted bedding sand. The recorded OVM measurements for the samples were 2.9 and 8.2 respectively. Soil samples 1326FDSEX103[3], 1326FDSEX104[3], 1326FDSEX105[3], and DUP101403A were collected from the native weathered serpentine. The recorded OVM measurements for each of these samples were12.7, 0.8, 4.8, and 5.1, respectively

Groundwater was not encountered during the trenching activities adjacent to Building 1326. The closest groundwater monitoring well to the site is located at former Landfill 4 approximately 550 feet to the southwest. Former Landfill 4 is positioned upgradient and slightly cross gradient from the 1326 area. The depth to water recorded in the closest monitoring well (LF4GW105) during the most recent available groundwater monitoring event, 2 June 2003 (*Draft Semi-annual Groundwater Monitoring Report, First and Second Quarters 2003, Presidio-wide Quarterly*

Groundwater Monitoring Program, Presidio of San Francisco, California, Volume II of II, October., Treadwell & Rollo, 2003) reports groundwater at 42.57 feet bgs. Based on the difference in ground surface elevation between former Landfill 4 and Building 1326, groundwater may be within five feet of the trench bottom.

Tables 1 presents the analytical results for the samples collected at the utility trench. No concentrations of BTEX or MTBE were detected in any of the soil samples. The TPHd concentrations in samples collected from the bedding sand (1326FDSEX101[2] and 1326FDSEX102[2]) were 8,000 mg/kg and 230 mg/kg. The TPHfo concentrations in the bedding sand samples were 6,600 mg/kg and 370 mg/kg. The highest TPH concentrations were detected in sample 1326FDSEX101[2].

Soil samples collected at a depth below the impacted bedding sand (1326FDSEX103[3], 1326FDSEX104[3], and 1326FDSEX105[3]) all contained TPHd and TPHfo. TPHd concentrations in the primary samples collected in the native material ranged between 91 mg/kg and 950 mg/kg; and TPHfo concentrations ranged between 59 mg/kg and 750 mg/kg.

As is common with soil duplicates because of soil matrix non-homogeneity, the results of the primary and duplicate sample are not consistent. The reported concentration from sample pair 1326FDSEX105[3] and DUP101402A are 560 mg/kg verses 1,300 mg/kg, 410 mg/kg verses 1,100 mg/kg, for TPHd and TPHfo, respectively

Conclusion and Recommendations

Impact from heavy hydrocarbons to the high-pressure gas pipeline bedding sand is visually obvious. The analytical results from the bedding sand indicate that TPHd and TPHfo range up to 8,000 mg/kg and 6,600 mg/kg, respectively. The soil samples collected from within the underlying native weathered serpentine bedrock also exhibit TPH impacts , but to a much lesser degree. The TPHd concentrations ranged up to 950 mg/kg and TPHfo concentrations up to 750 mg/kg. The lighter aromatic compounds associated with fuel hydrocarbons, BTEX and MTBE, were not detected in any of the sample.

The field and laboratory QC results indicate that the sampling and analysis performed for this sampling event were conducted consistent with the analytical method requirements. The results of the testing show good accuracy in the procedures. Overall, the results of the field and laboratory QC analyses indicate that the test results in this report are of sufficient quality to support the conclusions presented.

The TPH impacts are limited. Horizontally, the visually affected area is bounded by the two trenches (FDS removal and new utility) to the north and south. Vertically (based on visual observation), the affected thickness is an average impacted bedding sand thickness of

approximately 1.25 inches. Based on these assumptions, the impacted bedding sand remaining in place for the 80 feet long by 3 feet wide and 1.25 inch thick (estimated) volume is 1 cubic yard. Impacts to the underlying native material are insignificant. Groundwater was not encountered.

The presence of the high-pressure gas pipeline on the bedding sand is an important point to consider in evaluating a remedial action at the Building 1326 FDS site. To safely remove the contaminated bedding sand, the gas pipeline would have to taken out of service. The details, permitting, and scheduling for this action would have to be coordinated between the Trust, PG&E, and the affected parties.

Based on the above, no immediate remedial action appears to be warranted.

If you have any questions after reviewing this letter, please call me at (415) 955-9040, extension 267.

Sincerely yours,
TREADWELL & ROLLO, INC.

Michael A. Chamberlain
Project Geologist

Dorinda C. Shipman, R.G., C. HG.
Associate Geologist

1326 Results Letter revised final.doc

Lists of Enclosures are attached.

Enclosures:

Table 1 Summary of TPH, BTEX, and MTBE Results in Soil Samples

Figure 1 Site Location Map
Figure 2 Building 1326 FDS Soil Sample Locations

Photographs

Attachment 1 DataVal Report
Attachment 2 Analytical Laboratory Reports

TABLES

Table 1
Summary of TPH, BTEX, and MTBE Results in Soil Samples
Building 1326 FDS Pipeline
Presidio of San Francisco, California

			TPH as Diesel (C_{12}-C_{24}) mg/kg	TPH as Fuel Oil (C_{24}-C_{36}) mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	m,p-Xylenes mg/kg	o-Xylene mg/kg	MTBE mg/kg
		Analytical Method	SW8015M	SW8015M	SW8020	SW8020	SW8020	SW8020	SW8020	SW8020
Cleanup Level			**700**	**980**	**40,000**	**270,000**	**125,000**	**55,000***	**55,000***	**NE**
Sample Name	**Sample Date**	**Sample Depth (feet)**								
1326FDSEX101[2]	10/14/2003	2	8,000 HY	6,600 L	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 23
1326FDSEX102[2]	10/14/2003	2	230 HLY	370 L	< 5.7	< 5.7	< 5.7	< 5.7	< 5.7	< 23
1326FDSEX103[3]	10/14/2003	3	950 H	750 L	< 6	< 6	< 6	< 6	< 6	< 24
1326FDSEX104[3]	10/14/2003	3	91 H	59 L	< 6.4	< 6.4	< 6.4	< 6.4	< 6.4	< 25
1326FDSEX105[3]	10/14/2003	3	560 H	410 L	< 6.7	< 6.7	< 6.7	< 6.7	< 6.7	< 27
DUP101403A	10/14/2003	3	1,300 H	1,100 L	< 6.2	< 6.2	< 6.2	< 6.2	< 6.2	< 25
			ug/L	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
1326FDSEX105RBDUP	10/14/2003	NA	< 50	< 300	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<2

Notes
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
µg/L - micrograms per Liter
DUP prefix indicates a blind duplicate sample, parent sample precedes duplicate sample.
Sample FDSEX105RBDUP - is a field QC equipment rinsate sample.
NA - Not applicable
TPH - Total petroleum hydrocarbons
TPH as Fuel Oil using motor oil standard with carbon range C_{24}-C_{36}
MTBE - Methyl tert-butyl ether
Cleanup levels were obtained from the California Regional Water Quality Control Board, San Francisco Bay Region, Order R2-2003-0080.
55,000* - Concentration for soil cleanup levels of total xylenes
NE - Not established
H - Laboratory validation qualifier, "Heavier hydrocarbons contributed to the quantitation."
L - Laboratory validation qualifier "Lighter hydrocarbons contributed to the quantitation."
Y - Laboratory validation qualifier "Sample exhibits a fuel pattern which does not resemble a standard."

FIGURES

N

1000 0 1000 Feet

DRAFT

LEGEND

Area Depicted on Figures

SITE LOCATION MAP

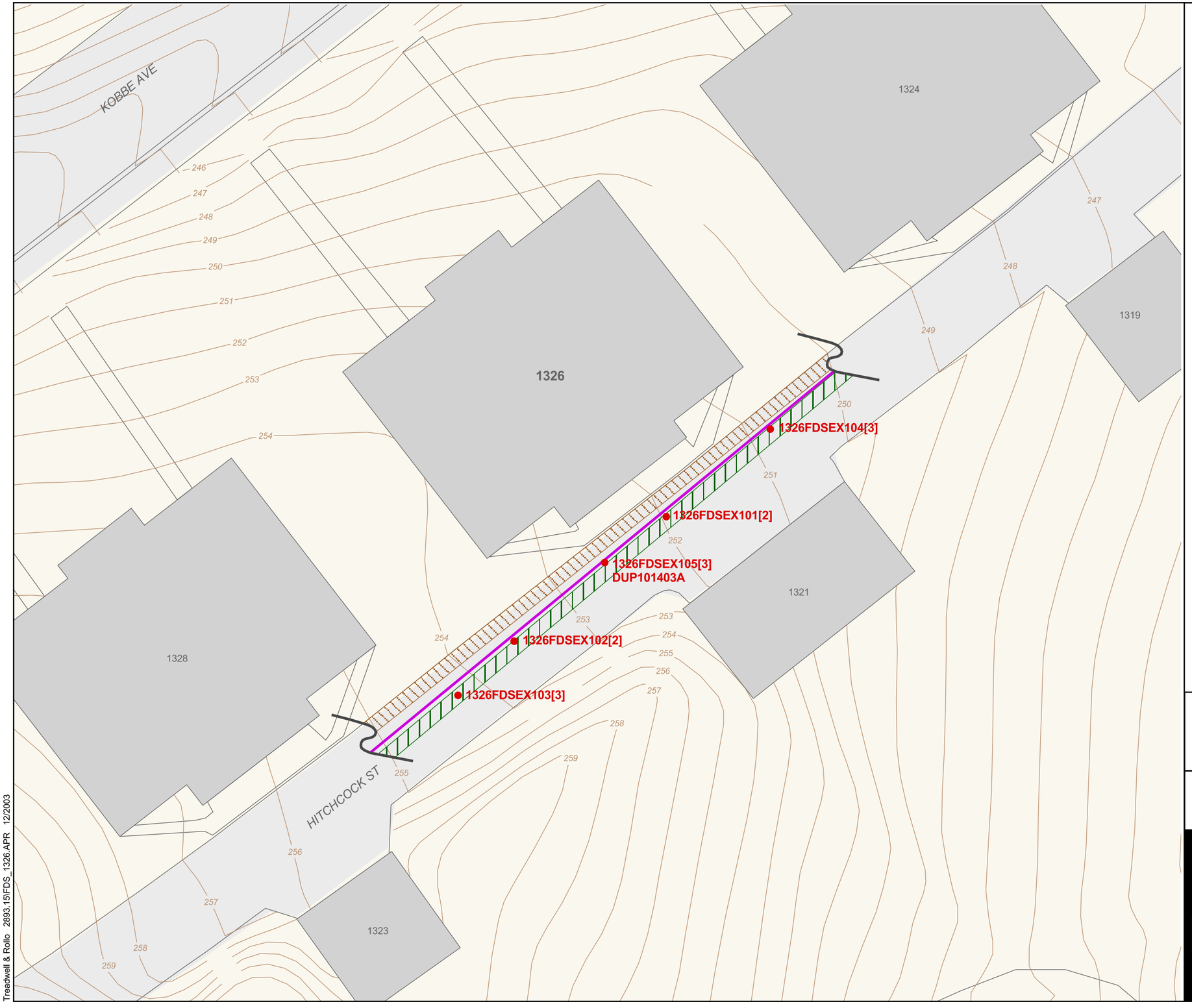
Treadwell&Rollo

THE PRESIDIO TRUST

Presidio Trust
34 Graham Street
P.O. Box 29052
San Francisco, CA
94129-0052
415/561-5300
fax 415/561-5315
March 2004

FIGURE 1

Treadwell & Rollo 2893.15\FDS_1326.APR 12/2003



N

DRAFT

20 0 20 Feet

LEGEND

- 1326FDSEX101[2] — FDS Sampling Points [depth in feet]
- DUP101403A — QA\QC Duplicate Sample
- Buried High Pressure Gas Pipeline
- Topographic Contour (Contour Interval : 1 ft)
- Presidio Basemap
- New Utility Line Trench
- FDS Pipeline Removal Trench (see notes)
- 1326 — Building and Number

Notes:
Fuel Distribution System Removal Report, Presidio of San Francisco, California, Vol 2, IT Corporation, May 1999

Basemap provided by the Presidio Trust in June 2003.

Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet

BUILDING 1326 FDS SOIL SAMPLE LOCATIONS

Treadwell&Rollo

Presidio Trust
34 Graham Street
P.O. Box 29052
San Francisco, CA
94129-0052
415/561-5300
fax 415/561-5315

March 2004

FIGURE 2

Treadwell & Rollo 2893.15\FDS_1326.APR 12/2003

Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report

Presidio of San Francisco
California

February 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total
FDS Section BR1-1														
BR1-1SB01	BR1-1SB01(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	29 Y	220	--	--	--	--	--	--
	DUP-1-092407	9/24/2007	2	HH-Res	HH-Res	overburden	25 Y	120	--	--	--	--	--	--
BR1-1SB02	BR1-1SB02(4.5)	9/24/2007	4.5	HH-Res	HH-Res	native	<1.1	<5.5	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0275
BR1-1SB03	BR1-1SB03(2.0)	9/27/2007	2	HH-Res	HH-Res	overburden	10 Y	59	--	--	--	--	--	--
FDS Section BR1-2														
BR1-2SB01	BR1-2SB01(3.0)	9/24/2007	3	HH-Res	HH-Res	native	5.1 Y	18	<0.0059	0.0043 J	0.0009 J	<0.0059	0.00062 J	0.00582
	BR1-2SB01(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	750	440	<0.15	**0.1 J**	<0.15	<0.15	0.05 J	0.15
BR1-2SB02	BR1-2SB02(3.0)	9/24/2007	3	HH-Res	HH-Res	native	<1.2	<5.8	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
	BR1-2SB02(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	<1.1	<5.7	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
BR1-2SB03	BR1-2SB03(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	1,100 Y	890	0.033 J	**<0.14**	<0.14	<0.14	0.079 J	0.112
BR1-2SB04	BR1-2SB04(3.0)	9/24/2007	3	HH-Res	HH-Res	native	4.3 Y	28	<0.011	<0.011	<0.011	<0.011	0.0022 J	0.0022
	BR1-2SB04(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	<1.1	<5.7	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
	DUP-3-092407	9/24/2007	6.5	HH-Res	HH-Res	native	<1.1	<5.7	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
BR1-2SB05	BR1-2SB05(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	4.7 Y	28	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	BR1-2SB05(9.0)	9/24/2007	9	HH-Res	HH-Res	native	<1.2	<6.1	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
BR1-2SB06	BR1-2SB06(6.5)	9/24/2007	6.5	HH-Res	HH-Res	native	<1.2	<5.8	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
FDS Section BR2-2														
BR2-2SB01	BR2-2SB01(3.0)	10/9/2007	3	HH-Res	HH-Res	native	74 Y	280	<0.059	0.0093 J	0.017 J	<0.059	0.02 J	0.0463
BR2-2SB02	BR2-2SB02(2.0)	10/9/2007	2	HH-Res	HH-Res	native	710	**3,100**	**<2.3**	**<2.3**	0.26 J+	**<2.3**	<2.3	0.26
FDS Section BR3-1														
BR3-1SB01	BR3-1SB01(3.0)	9/25/2007	3	HH-Res	HH-Res	native	--	--	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
	BR3-1SB01(6.0)	9/25/2007	6	HH-Res	HH-Res	native	--	--	<0.012	<0.012	<0.012	<0.012	<0.012	<0.06
BR3-1SB02	BR3-1SB02(5.0)	9/25/2007	5	HH-Res	HH-Res	native	51	45	0.016 J	0.025 J	0.019 J+	<0.028	0.028 J	0.088
	BR3-1SB02(10.0)	9/25/2007	10	>5 GW	na	native	<1.7	<8.6	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.043
	DUP-2-092507	9/25/2007	10	>5 GW	na	native	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05
BR3-1SB03	BR3-1SB03(5.5)	9/25/2007	5.5	HH-Res	HH-Res	native	--	--	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
	BR3-1SB03(10.0)	9/25/2007	10	>5 GW	na	native	--	--	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0355
FDS Section BR3-2														
BR3-2SB01	BR3-2SB01(9.5)	9/26/2007	9.5	HH-Res	HH-Res	native	<1.1	<5.7	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.028
FDS Section BR5-2														
BR5-2SB01	BR5-2SB01(2.5)	9/24/2007	2.5	HH-Res	HH-Res	native	1,200 Y	1,600	<0.17	**<0.17**	0.022 J	<0.17	0.049 J	0.071
>5 GW							**15,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total
FDS Section BR5-2														
BR5-2SB02	BR5-2SB02(1.0)	9/28/2007	1	HH-Res	HH-Res	native	270 Y	420	<0.024	<0.024	0.011 J	0.0045 J	0.026	0.0415
BR5-2SB03	BR5-2SB03(2.5)	9/28/2007	2.5	HH-Res	HH-Res	native	<1.8	<8.9	<0.018	<0.018	<0.018	<0.018	<0.018	<0.09
BR5-2SB04	BR5-2SB04(3.0)	9/28/2007	3	HH-Res	HH-Res	native	**9,700**	**8,400**	**2.9**	**1.5**	**1.1**	0.23 J	**4.9**	**10.6**
BR5-2SB05	BR5-2SB05(2.5)	9/24/2007	2.5	HH-Res	HH-Res	native	**2,300**	**2,000**	**0.96**	**0.48**	0.41	0.077 J	1.2	3.13
BR5-2SB06	BR5-2SB06(2.5)	9/24/2007	2.5	HH-Res	HH-Res	native	780	580	--	--	--	--	--	--
	DUP2-092407	9/24/2007	2.5	HH-Res	HH-Res	native	520	340	--	--	--	--	--	--
BR5-2SB07	BR5-2SB07(1.5)	9/24/2007	1.5	HH-Res	HH-Res	overburden	7.8 J+,Y	46	<0.0055	0.0039 J	0.00065 J	<0.0055	<0.0055	0.00455
BR5-2SB08	BR5-2SB08(1.5)	9/28/2007	1.5	HH-Res	HH-Res	overburden	690 Y	**2,800**	**<2.7**	**<2.7**	**<2.7**	**<2.7**	<2.7	<13.5
FDS Section BR5-3														
BR5-3SB01	BR5-3SB01(2.5)	9/25/2007	2.5	HH-Res	HH-Res	native	5.5 Y	52	<0.026	<0.026	<0.026	<0.026	<0.026	<0.13
BR5-3SB02	BR5-3SB02(2.5)	9/25/2007	2.5	HH-Res	HH-Res	native	<1	6.7	0.00092 J	0.0041 J	0.0014 J+	<0.0053	0.00088 J	0.0073
BR5-3SB03	BR5-3SB03(2.5)	9/25/2007	2.5	HH-Res	HH-Res	native	<1	<5.2	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.026
BR5-3SB04	BR5-3SB04(2.5)	9/25/2007	2.5	HH-Res	HH-Res	native	<11 J	<5.2	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
FDS Section BR6-1														
BR6-1SB01	BR6-1SB01(1.5)	9/25/2007	1.5	HH-Res	HH-Res	overburden	<1	<5.1	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
	DUP-1-092507	9/25/2007	1.5	HH-Res	HH-Res	overburden	<1	<5.1	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
BR6-1SB02	BR6-1SB02(1.5)	9/25/2007	1.5	HH-Res	HH-Res	overburden	<1	<5.2	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.026
BR6-1SB03	BR6-1SB03(1.5)	9/28/2007	1.5	HH-Res	HH-Res	overburden	28 Y	280	0.0022 J	0.0032 J	0.004 J	<0.011	0.0025 J	0.0119
FDS Section BR6-3														
BR6-3SB01	BR6-3SB01(10.0)	9/26/2007	10	>5 GW	na	native	<1.1	<5.7	--	--	--	--	--	--
BR6-3SB02	BR6-3SB02(2.5)	9/26/2007	2.5	HH-Rec	HH-Rec	native	<1.2	<5.9	0.0011 J	<0.0059	0.0015 J	<0.0059	<0.0059	0.0026
BR6-3SB03	BR6-3SB03(2.5)	9/26/2007	2.5	HH-Rec	HH-Rec	native	<1.2	<5.8	--	--	--	--	--	--
BR6-3SB04	BR6-3SB04(12.0)	9/26/2007	12	>5 GW	na	native	1,400	790	--	--	--	--	--	--
	BR6-3SB04(17.0)	9/26/2007	17	>5 GW	na	native	<1.2	<5.9	--	--	--	--	--	--
FDS Section BR7-1														
BR7-1SB01	BR7-1SB01(1.5)	9/28/2007	1.5	HH-Rec	HH-Rec	overburden	--	--	0.0025 J	0.0018 J	0.0037 J	<0.011	0.0031 J	0.0111
BR7-1SB02	BR7-1SB02(1.5)	9/28/2007	1.5	HH-Rec	HH-Rec	overburden	--	--	0.0019 J	0.0018 J	0.0061	0.0009 J	0.007	0.0177
BR7-1SB05	DUP-2-092707	9/27/2007	1.5	HH-Rec	HH-Rec	overburden	<1.1	<5.7	--	--	--	--	--	--
FDS Section BR7-2														
BR7-2SB01	BR7-2SB01(1.5)	10/9/2007	1.5	HH-Rec	HH-Rec	overburden	46 Y	200	0.063 J	**0.11 J**	0.37 J+	0.088 J	0.063 J	0.694
>5 GW							**15,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value. Plus sign indicates numerical value has high bias.
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater
<5 CF (Table 5) Soil Cleanup Levels for Crissy Field, < 5 feet above the hightest groundwater
<5 MCL (Table 4) Soil Cleanup Levels for the Protection of Water Quality at Drinking Water Standards, < 5 feet above the highest groundwater
Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream
Eco-SW (Table 6) Point-of-Compliance Concentrations for Soil and Water for Petroleum Hydrocarbons, BTEX, and MTBE for the Saltwater Protection Zone
Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section BR1-1																						
BR1-1SB02	BR1-1SB02(4.5)	9/24/2007	4.5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0275
FDS Section BR1-2																						
BR1-2SB01	BR1-2SB01(3.0)	9/24/2007	3	HH-Res	<0.0059	<0.0059	<0.0059	<0.0059	0.0043 J	0.0009 J	0.00075 J	<0.0059	0.00062 J	<0.0059	<0.0059	<0.0059	<0.0059	0.0011 J	<0.0059	<0.0059	0.00087 J	0.00582
	BR1-2SB01(6.5)	9/24/2007	6.5	HH-Res	0.034 J	0.026 J	0.035 J	<0.15	**0.1 J**	<0.15	<0.15	<0.15	0.05 J	<0.15	<0.15	0.098 J	<0.15	<0.15	<0.15	<0.15	0.076 J	0.15
BR1-2SB02	BR1-2SB02(3.0)	9/24/2007	3	HH-Res	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
	BR1-2SB02(6.5)	9/24/2007	6.5	HH-Res	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
BR1-2SB03	BR1-2SB03(6.5)	9/24/2007	6.5	HH-Res	0.058 J	<0.14	0.076 J	0.033 J	<0.14	<0.14	<0.14	<0.14	0.079 J	<0.14	<0.14	0.33	<0.14	<0.14	<0.14	<0.14	0.14 J	0.112
BR1-2SB04	BR1-2SB04(3.0)	9/24/2007	3	HH-Res	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.0022 J	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.0022
	BR1-2SB04(6.5)	9/24/2007	6.5	HH-Res	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
	DUP-3-092407	9/24/2007	6.5	HH-Res	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
BR1-2SB05	BR1-2SB05(6.5)	9/24/2007	6.5	HH-Res	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	BR1-2SB05(9.0)	9/24/2007	9	HH-Res	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
BR1-2SB06	BR1-2SB06(6.5)	9/24/2007	6.5	HH-Res	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
FDS Section BR2-2																						
BR2-2SB01	BR2-2SB01(3.0)	10/9/2007	3	HH-Res	<0.059	<0.059	<0.059	<0.059	0.0093 J	0.017 J	0.03 J-	<0.059	0.02 J	0.0063 J-	0.0093 J	<0.059	0.0089 J-	0.0074 J	0.0073 J	0.013 J	0.014 J	0.0463
BR2-2SB02	BR2-2SB02(2.0)	10/9/2007	2	HH-Res	<2.3	<2.3	<2.3	<2.3	<2.3	0.26 J+	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	0.26
FDS Section BR3-1																						
BR3-1SB01	BR3-1SB01(3.0)	9/25/2007	3	HH-Res	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0285
	BR3-1SB01(6.0)	9/25/2007	6	HH-Res	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.06
BR3-1SB02	BR3-1SB02(5.0)	9/25/2007	5	HH-Res	<0.028	<0.028	<0.028	0.016 J	0.025 J	0.019 J+	0.015 J	<0.028	0.028 J	0.0038 J	0.038	0.01 J	0.0069 J	0.017 J	0.0056 J	0.049	0.046	0.088
	BR3-1SB02(10.0)	9/25/2007	10	na	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.0086	<0.043
	DUP-2-092507	9/25/2007	10	na	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05
BR3-1SB03	BR3-1SB03(5.5)	9/25/2007	5.5	HH-Res	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
	BR3-1SB03(10.0)	9/25/2007	10	na	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0355
FDS Section BR3-2																						
BR3-2SB01	BR3-2SB01(9.5)	9/26/2007	9.5	HH-Res	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.028
FDS Section BR5-2																						
BR5-2SB01	BR5-2SB01(2.5)	9/24/2007	2.5	HH-Res	<0.17	<0.17	<0.17	<0.17	<0.17	0.022 J	0.048 J	<0.17	0.049 J	<0.17	<0.17	<0.17	0.019 J	<0.17	<0.17	<0.17	0.051 J	0.071
BR5-2SB02	BR5-2SB02(1.0)	9/28/2007	1	HH-Res	<0.024	0.0028 J	<0.024	<0.024	<0.024	0.011 J	0.01 J	0.0045 J	0.026	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	0.011 J	0.0415
BR5-2SB03	BR5-2SB03(2.5)	9/28/2007	2.5	HH-Res	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.09
BR5-2SB04	BR5-2SB04(3.0)	9/28/2007	3	HH-Res	2.7	0.77	3.7	**2.9**	**1.5**	**1.1**	0.38	0.23 J	**4.9**	0.2 J	1.7	4.4	0.32 J	0.28 J	0.62	9.1	4.9	**10.6**
BR5-2SB05	BR5-2SB05(2.5)	9/24/2007	2.5	HH-Res	0.47	0.17 J	0.48	**0.96**	**0.48**	0.41	0.19	0.077 J	1.2	0.079 J	0.44	0.88	0.13 J	0.17 J	0.16 J	0.44	1.4	3.13
BR5-2SB07	BR5-2SB07(1.5)	9/24/2007	1.5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	0.0039 J	0.00065 J	0.0016 J	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.00455
BR5-2SB08	BR5-2SB08(1.5)	9/28/2007	1.5	HH-Res	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	1 J	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<13.5
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section MT-15																						
MT-15SB03	MT-15SB03(3.5)	9/28/2007	3.5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.00088 J	<0.0055	<0.0055	<0.0055	<0.0055	0.00096 J	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.0012 J	0.00088
FDS Section MT-16																						
MT-16SB01	MT-16SB01(1.5)	9/26/2007	1.5	HH-Res	<0.027	<0.027	<0.027	0.006 J	0.011 J	0.017 J	0.014 J	0.0059 J	<0.027	<0.0277 J	0.0077 J	<0.027	<0.0277 J	0.027 J	<0.027	0.0069 J	0.011 J	0.0399
MT-16SB02	MT-16SB02(1.5)	9/26/2007	1.5	HH-Res	<0.0059	0.0089	0.0036 J	0.018	0.029 J	0.034 J	0.034 J	0.0095 J	0.019	0.0067 J	0.0092	<0.0059	0.023 J	0.0059 J	<0.0059	0.003 J	0.02	0.11
MT-16SB03	MT-16SB03(1.5)	9/26/2007	1.5	HH-Res	0.00088 J	0.0015 J	0.0053 J	0.019	0.021	0.028	0.013 J+	0.012	0.026	0.012	0.028	0.0012 J	0.015	0.0043 J	0.0024 J	0.017	0.035	0.106
FDS Section MT-17																						
MT-17SB03	MT-17SB03(3.5)	9/27/2007	3.5	HH-Res	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.028
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
PAHs - Polynuclear Aromatic Hydrocarbons
CI - see narrative
J - estimated value
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB01(2.5)	9/24/2007	1,200Y	1,600	0.071
BR5-2SB02(1.0)	9/28/2007	270Y	420	0.0415
BR5-2SB03(2.5)	9/28/2007	<1.8	<8.9	<0.09
BR5-2SB04(3.0)	9/28/2007	**9,700**	**8,400**	**10.63**
BR5-2SB05(2.5)	9/24/2007	**2,300**	**2,000**	3.127

Army Data, 1997			
Sample ID	Sample Date	TPHi	PAHi
FB05006L01(2.0)	5/6/1997	**>1,420**	**>5.0**

Treadwell & Rollo, 2004		
Sample ID	TPHd	TPHfo
1326FDSEX101[2]	**8,000 H**	**6,000Y**
1326FDSEX102[2]	230 HY	370 Y
1326FDSEX103[2]	950	750Y
1326FDSEX104[2]	91	56 Y
1326FDSEX105[2]	560	410 Y
DUP101403A	1,300	1,100 Y

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB07(1.5)	9/24/2007	7.8Y	46	0.00455
BR5-2SB08(1.5)	9/28/2007	690Y	**2,800**	<13.5

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB06(2.5)	9/24/2007	780	580	--
DUP2-092407	9/24/2007	520	340	--

Army Data, 1997			
Sample ID	Sample Date	TPHi	PAHi
FB05007T01(2.5)	5/5/1997	<1,420	<5.0

Cleanup Levels ("CULs") (mg/kg)					
Depth Range (ft bgs)	Basis for TPHd/fo CULs	TPHd	TPHfo	Basis for cPAH CULs	Total cPAHs
<3	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
3-10	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
>10	> 5 ft to Groundwater	15,000	15,000	--	--

KOBBE AVE
HITCHCOCK ST
WRIGHT LO
WISSER CT
FDS MT-8
1330
1328
1327
1323
1325
1324
1322
1320
1319
1317
1315
BR5-2SB09
BR5-2SB10
BR5-2SB02
BR5-2SB01
BR5-2SB04
BR5-2SB05
FB05006L01
BR5-2SB03
1326FDSEX103[3]
1326FDSEX102[2]
1326FDSEX105[3]
BR5-2SB06
FB05007T01
1326FDSEX101[2]
1326FDSEX104[3]
Utility Trench (Note 4)
Sta. 9+00
Sta. 11+00
BR5-2SB07
BR5-2SB08
Assumed Groundwater Gradient Direction

Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1996)
- Army Confirmation Soil Sampling Location Above Applicable Cleanup Levels (Army, 1996)
- Native Soil Sampling Location (EKI, 2007)
- Overburden Soil Sampling Location (EKI, 2007)
- Native Soil Sampling Location (T&R, 2004)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- High Pressure Natural Gas Pipeline
- Historical Excavation Area
- Soil Sample Above Applicable Cleanup Levels
- Proposed Grab Groundwater Location
- Approximate Extent of Land Use Notification Area

Abbreviations:

cPAHs	= carcinogenic Polycyclic Aromatic Hydrocarbons
FDS	= Fuel Distribution System
PAHi	= Polycyclic Aromatic Hydrocarbon Immunoassay Analysis
TPHd	= Total Petroleum Hydrocarbons as Diesel
TPHfo	= Total Petroleum Hydrocarbons as Fuel Oil
TPHi	= Total Petroleum Hydrocarbons by Immunoassay Analysis
Y	= Chromatographic Pattern does not Resemble Standard

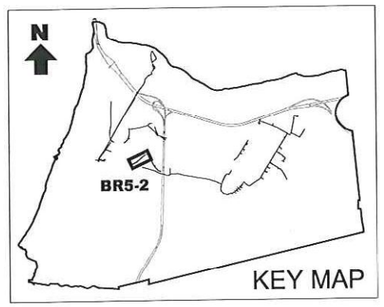
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. FDS trench locations were adjusted based on observations of trench scars in the field and survey coordinates of samples taken along former trench.
4. Approximate area of utility trench excavation where visually affected soil remaining in place was observed along the northern trench wall, in bedding sand beneath the high pressure natural gas pipeline.
5. Reported chemical concentrations above soil cleanup levels are in **bold**.
6. All concentrations in milligrams per kilogram ("mg/kg").

N

0 50 100

(Approximate Scale in Feet)



Erler & Kalinowski, Inc.

Soil Sampling Results at
Fuel Distribution System
Section BR5-2

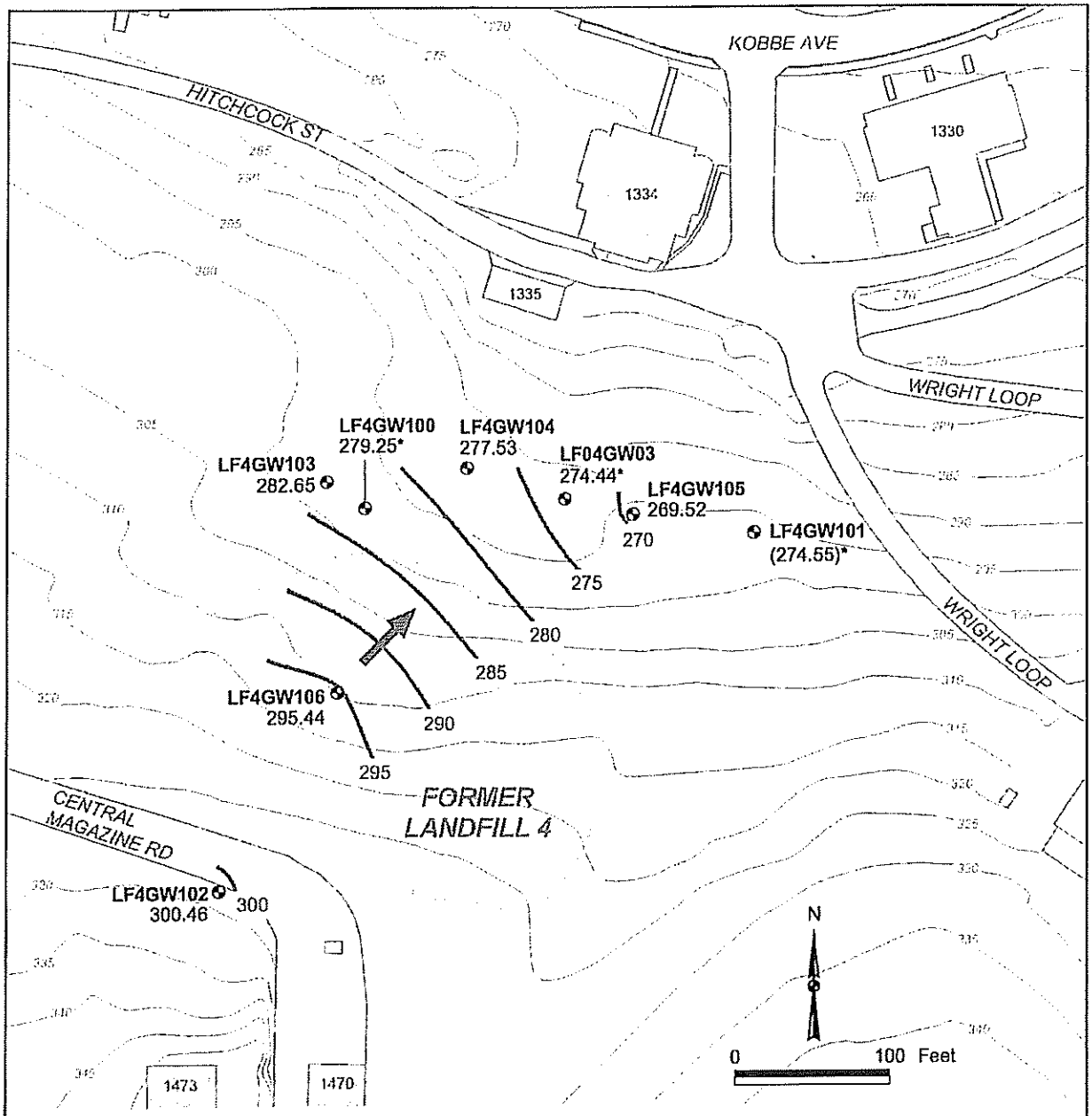
Presidio Trust
San Francisco, CA

February 2009
EKI A70004.16

Figure 7

Appendix F-2

FDS Section BR5-2 Historical Documents



LEGEND

- Approximate Direction of Groundwater Flow
- Groundwater Contour (Contour Interval : 5 ft)
- Former Landfill 4 Excavation Boundary
- Topographic Contour (Contour Interval : 5 ft)

LF4GW104 Groundwater Monitoring Well
277.53 February 2007 Groundwater Elevations

(274.55) Value indicates bottom of casing elevation in feet PLLW

* LF4GW100, LF4GW101 and LF04GW03 were not used for groundwater contouring because they are screened in shallower lithologic units.

1335 Building and Number

Notes:
Groundwater elevation data collected on 26 February 2007.

Horizontal Datum: NAD 27, CA State Plane Coordinates, Zone 3, feet

Vertical Datums: (groundwater) Presidio Lower Low Water (ft. PLLW) (topography) North American Vertical Datum, NAVD88

LANDFILL 4 SITE PLAN AND 26 FEBRUARY 2007 GROUNDWATER ELEVATION MAP

Treadwell&Rollo

THE PRESIDIO TRUST

Presidio Trust
34 Graham Street
P.O. Box 29052
San Francisco, CA
94129-0052
415/561-5300
fax 561-5315
October 2007

FIGURE A-8-1

Treadwell & Rollo 2893_04\02_2007A_08.APR 10/2007

Former Fuel Distribution System ("FDS") Area B Phase III Field Sampling and Closure Report

Presidio of San Francisco
California

October 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB01(2.5)	9/24/2007	1,200 Y	1,600	0.071
BR5-2SB02(1.0)	9/28/2007	270 Y	420	0.0415
BR5-2SB03(2.5)	9/28/2007	<1.8	<8.9	<0.09
BR5-2SB04(3.0)	9/28/2007	**9,700**	**8,400**	**10.63**
BR5-2SB05(2.5)	9/24/2007	**2,300**	**2,000**	3.127

Army Data, 1997			
Sample ID	Sample Date	TPHi	PAHi
FB05006L01(2.0)	5/6/1997	**>1,420**	**>5.0**

Treadwell & Rollo, 2004		
Sample ID	TPHd	TPHfo
1326FDSEX101[2]	**8,000 H**	**6,000Y**
1326FDSEX102[2]	230 HY	370 Y
1326FDSEX103[2]	950	750Y
1326FDSEX104[2]	91	56 Y
1326FDSEX105[2]	560	410 Y
DUP101403A	1,300	1,100 Y

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB07(1.5)	9/24/2007	7.8 Y	46	0.00455
BR5-2SB08(1.5)	9/28/2007	690 Y	**2,800**	<13.5

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR5-2SB06(2.5)	9/24/2007	780	580	--
DUP2-092407	9/24/2007	520	340	--

Army Data, 1997			
Sample ID	Sample Date	TPHi	PAHi
FB05007T01(2.5)	5/5/1997	<1,420	<5.0

Cleanup Levels ("CULs") (mg/kg)					
Depth Range (ft bgs)	Basis for TPHd/fo CULs	TPHd	TPHfo	Basis for cPAH CULs	Total cPAHs
<3	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
3-10	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
>10	> 5 ft to Groundwater	15,000	15,000	--	--

KOBBE AVE
HITCHCOCK ST
WRIGHT LO
WISSER CT
FDS MT-8
1330
1328
1326
1324
1322
1320
1323
1327
1325
1319
1317
1315
BR5-2SB09
BR5-2SB10
BR5-2SB02
BR5-2SB01
BR5-2SB04
BR5-2SB05
FB05006L01
BR5-2SB03
BR5-2SB06
FB05007T01
BR5-2SB07
BR5-2SB08
1326FDSEX104[3]
1326FDSEX101[2]
1326FDSEX105[3]
1326FDSEX102[2]
1326FDSEX103[3]
Utility Trench (Note 4)
Sta. 9+00
Sta. 11+00
Assumed Groundwater Gradient Direction
260
255
250
240

Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1996)
- Army Confirmation Soil Sampling Location Above Applicable Cleanup Levels (Army, 1996)
- Native Soil Sampling Location (EKI, 2007)
- Overburden Soil Sampling Location (EKI, 2007)
- Native Soil Sampling Location (T&R, 2004)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- High Pressure Natural Gas Pipeline
- Historical Excavation Area
- Soil Sample Above Applicable Cleanup Levels
- Attempted Grab Groundwater Location
- Approximate Extent of Land Use Notification Area

Abbreviations:

cPAHs = carcinogenic Polycyclic Aromatic Hydrocarbons
FDS = Fuel Distribution System
PAHi = Polycyclic Aromatic Hydrocarbon Immunoassay Analysis
TPHd = Total Petroleum Hydrocarbons as Diesel
TPHfo = Total Petroleum Hydrocarbons as Fuel Oil
TPHi = Total Petroleum Hydrocarbons by Immunoassay Analysis
Y = Chromatographic Pattern does not Resemble Standard

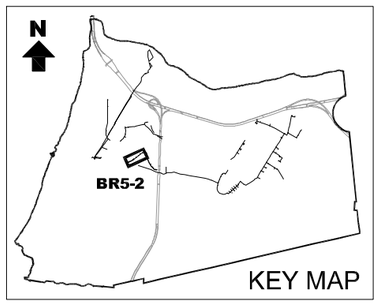
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. FDS trench locations were adjusted based on observations of trench scars in the field and survey coordinates of samples taken along former trench.
4. Approximate area of utility trench excavation where visually affected soil remaining in place was observed along the northern trench wall, in bedding sand beneath the high pressure natural gas pipeline.
5. Reported chemical concentrations above soil cleanup levels are in **bold**.
6. All concentrations in milligrams per kilogram ("mg/kg").

N

0 50 100

(Approximate Scale in Feet)



Erler & Kalinowski, Inc.

Soil Sampling Results at
Fuel Distribution System
Section BR5-2

Presidio Trust
San Francisco, CA
October 2009
EKI A70004.16

Figure 1

FDS SEGMENT BR5-2 LAND USE NOTIFICATION

SITE-SPECIFIC ADDENDUM TO THE PRESIDIO TRUST LAND USE CONTROL MASTER REFERENCE REPORT

PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Prepared for:

The Presidio Trust
34 Graham Street, P.O. Box 29052
San Francisco, California 94129-0052

Prepared by:

Erler & Kalinowski, Inc.
1870 Ogden Drive
Burlingame, California 94010

October 2009

John T. DeWitt, P.E., Erler & Kalinowski, Inc.

10/2/09
Date

FDS SEGMENT BR5-2 LAND USE NOTIFICATION

SITE-SPECIFIC ADDENDUM TO THE PRESIDIO TRUST LAND USE CONTROL MASTER REFERENCE REPORT

Presidio of San Francisco, California

CONTENTS

Page

1. INTRODUCTION

This Site-Specific addendum to the Presidio Trust Land Use Control Master Reference Report ("LUCMRR") has been prepared for selected areas along the former fuel distribution system ("FDS") Segment BR5-2, in the vicinity of Buildings 1320, 1326, and 1328 on Hitchcock Street. Residual petroleum hydrocarbons above applicable cleanup levels associated with the former FDS line were identified in the *Former Fuel Distribution System Area B Phase III Field Sampling And Closure Report, The Presidio of San Francisco, California* ("FDS Phase III Closure Report") (EKI, 2009).

2. BUILDINGS AND AREAS INCLUDED IN THE LAND USE NOTIFICATION

The FDS Segment BR5-2 land use notification ("LUN") area includes discrete areas under pavement around the former FDS pipeline at soil sampling locations within Hitchcock Street and near Buildings 1320, 1326, and 1328 where petroleum-impacted soil remains in place (Figure1).

3. REMEDIATION SUMMARY AND REMAINING CHEMICALS OF CONCERN

This section describes the site history and remedial actions implemented and identifies chemicals of concern ("COCs") that were detected above residential cleanup levels ("CULs") in the FDS Segment BR5-2 LUN Area. A detailed description of the remedial actions and concentration of COCs remaining in soil at the specific soil samples in the LUN Area are provided in the FDS Phase III Closure Report (EKI, 2009).

3.1 Site History

The Army's FDS pipelines distributed fuel throughout the Presidio. FDS Segment BR5-2 was removed by the Army. Soil sampling indicates that residual petroleum hydrocarbons and related constituents are present at concentrations that exceed residential cleanup levels. The depth to groundwater exceeds 20 feet in this area.

Soil samples collected in three specific locations in Hitchcock Street near Buildings 1320, 1326, and 1328 exceed applicable cleanup levels. As the soil impacts are limited and no groundwater impacts were identified, Trust has requested closure for FDS Segment BR5-2 from the Water Board with a LUN.

3.2 Residual Chemicals Necessitating the LUN

The residential cleanup levels for PAHs, TPHd, and TPHfo are 5.6 mg/kg, 1,380 mg/kg and 1,900 mg/kg, respectively.

The maximum detected concentrations of residual petroleum hydrocarbons and related constituents along FDS Segment BR5-2 were all detected at sample location BR5-2SB04(03) and are:

- PAHs: 10.63 mg/kg;
- TPHd: 9,700 mg/kg; and,
- TPHfo: 8,400 mg/kg.

4. SITE-SPECIFIC LAND USE NOTIFICATIONS

The site-specific land use notifications applicable to soil at FDS Segment BR5-2 LUN Areas are described below.

- There are no restrictions on land use or future site development, including sensitive uses such as housing, schools, playgrounds, hospitals, and daycare facilities.

- When future development is proposed, the project proponents will be notified of the presence of residual COCs at concentrations exceeding human and ecological cleanup levels in soil at a depth of 3.0 ft bgs as part of the Trust's soil management process per the Trust's Soil Management Guidelines. The site data will be made available to the appropriate staff so that informed decisions regarding project implementation can be made. Soil management requirements may be stipulated in permits and authorizations issued per the Trust's N^2 and Dig Permit processes.

- Excavation of soils within the Infantry Terrace LUN Area at depths of 3.0 feet bgs or greater shall be managed and/or disposed of in accordance with Presidio policies and procedures and applicable federal, state, and local laws and regulations.

5. MONITORING, INSPECTION, AND REPORTING REQUIREMENTS

No special site monitoring or inspections will be performed. The Trust will evaluate proposed construction activities or changes in land use within the Infantry Terrace LUN Area during the Trust's N^2 and Dig Permit process. Any changes to land use will be described in the annual Presidio Area B LUC Report.

In accordance with the LUCMRR, valid values for the site-specific LUNs and survey coordinates are provided in Tables 1 and 2.

6. REFERENCES

Erler & Kalinowski, Inc. ("EKI"), 2009. *Former Fuel Distribution System Area B Phase III Field Sampling and Closure Report, Presidio of San Francisco, California.* October.

EKI, 2002. *Development of Presidio-wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California.* October.

TABLE 1
FDS SEGMENT BR5-2 AREA LAND USE NOTIFICATIONS

Presidio of San Francisco, California

Site Name	Land Use Controls	Regulatory Requirement for LUC?	Coordinates of 4 Points (a)		LUCMRR Addendum Information		
					Name	Date	File Name
	(Valid Values)		A				
FDS Segment BR5-2			Northing		BR5-2 LUN	10/2/2009	
	● Land Use Notification	No	Easting				
			B				
			Northing				
			Easting				
			C				
			Northing				
			Easting				
			D				
			Northing				
			Easting				

Notes:
(a) Because this LUN Area consists of 3 separate areas, see Table 2 for detailed coordinates.

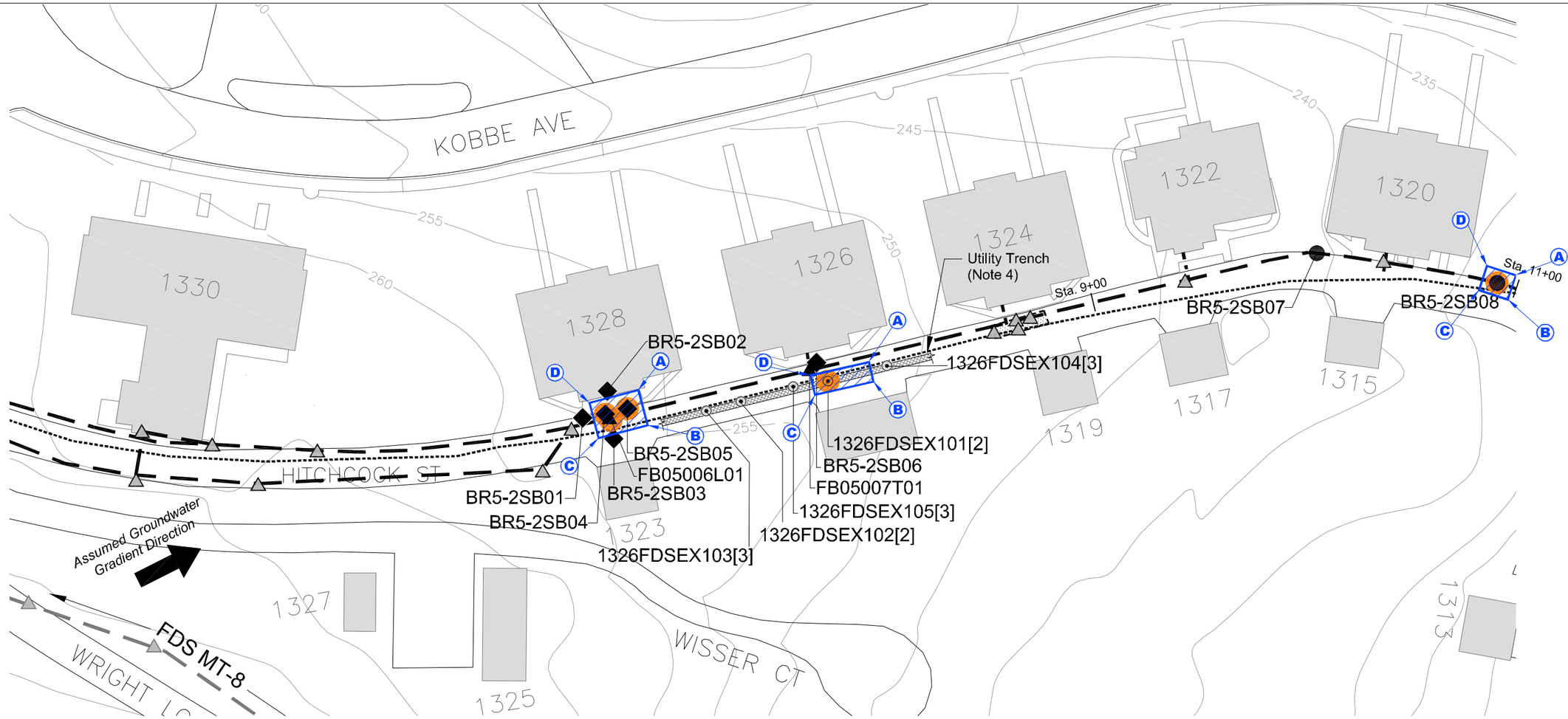
TABLE 2
FDS SEGMENT BR5-2 AREA LAND USE NOTIFICATION COORDINATES

Presidio of San Francisco, California

Site Name		Point A		Point B		Point C		Point D	
		Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting
FDS Segment BR5-2	Near Building 1320	479019.8	1430795.6	479008.5	1430797.0	479006.8	1430783.6	479018.1	1430782.2
	Near Building 1326	478862.6	1430550.1	478855.6	1430555.5	478839.2	1430534.4	478846.3	1430528.9
	Near Building 1328	478807.9	1430461.9	478795.3	1430472.4	478780.9	1430455.0	478793.4	1430444.6

Notes:

(a) Because these LUN Areas are generally around areas of impact in Hitchcock Street, coordinates are generated from the AutoCAD figure. Coordinates are in California State Plane NAD1927 coordinate system.



Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1996)
- Army Confirmation Soil Sampling Location Above Applicable Cleanup Levels (Army, 1996)
- Native Soil Sampling Location (EKI, 2007)
- Overburden Soil Sampling Location (EKI, 2007)
- Native Soil Sampling Location (T&R, 2004)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- High Pressure Natural Gas Pipeline
- Historical Excavation Area
- Soil Sample Above Applicable Cleanup Levels
- Approximate Extent of Land Use Notification Area
- Land Use Notification Corner Point

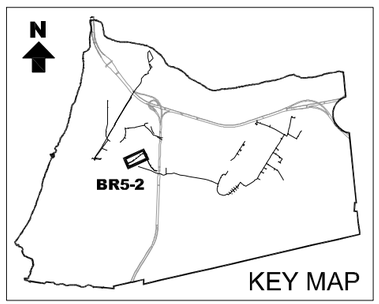
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. FDS trench locations were adjusted based on observations of trench scars in the field and survey coordinates of samples taken along former trench.
4. Approximate area of utility trench excavation where visually affected soil remaining in place was observed along the northern trench wall, in bedding sand beneath the high pressure natural gas pipeline.

N

0 50 100

(Approximate Scale in Feet)



Erler & Kalinowski, Inc.

Land Use Notification Areas at
Fuel Distribution System
Section BR5-2

Presidio Trust
San Francisco, CA
October 2009
EKI A70004.16

Figure 1

Attachment A-2

BR10-1

Site Closure Summary

Fuel Distribution System Area B Phase III, Presidio of San Francisco, San Francisco, California

I. AGENCY INFORMATION

Agency Name: S.F.B.R.W.Q.C.B.	Responsible Staff Person: Agnes Farres
Address: 1515 Clay Street, Suite 1400	Title: Environmental Scientist
City/State/Zip: Oakland, California 94612	Phone: 510-622-2401

II. SITE INFORMATION

Site Facility Name: FDS Area B, Presidio of San Francisco		Is the Site in a Residential Area?	No
RB/SMS Case No.:	38D9330	Is the Site Designated for Unrestricted Use?	Yes

Responsible Parties:

Presidio Trust
Attn.: Eileen Fanelli, Remediation Program Manager
P.O. Box 29052
San Francisco, California 94129-0052
Telephone No.: 415-561-4259

Section Number:	BR10-1	Contents:	Fuel Oil
Removal Status:	Removed with documentation	Length Removed (ft):	699
Removal Date:	8/21/1996	Length Abandoned in Place (ft):	34
		Diameter (inches):	6

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release:
Fuel Distribution System piping release

Site characterization complete?	Yes	Most Sensitive Current Use:	Recreational
Monitoring wells installed?	No	Most Sensitive Potential Use:	Recreational
Number:	0	Are Drinking Water Wells Affected?	No
Proper Screened Interval?	N/A	Aquifer Name:	N/A
GW Depth Below Ground Surface:	13	Is Surface Water Affected?	No
		Nearest/Affected SW Name:	Tennessee Hollow
Groundwater Basin or Area:	Northeastern	Is the Freshwater Zone Affected?	No

Off-Site Beneficial Use Impacts (Addresses/Locations):
None

Report on file? Yes
Where is report(s) filed? SF Bay Water Board, Oakland, CA

Lead Agency Name: RWQCB

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)		Action (Treatment of Disposal w/ Destination)	Date
Pipe	699	ft	Excavate and dispose	8/21/1996
Soil	756	cy	Excavate and treat	8/21/1996

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Maximum Documented Pollutant Concentrations Before and After Cleanup:
See Attached Tables

Background:

The predominant features of Section BR10-1 are office and administrative buildings, paved roads, landscaped lawns, and gently sloping terrain. The piping began on the east side of Building 228 and ended at the Halleck Street and Lincoln Boulevard intersection.

The Army removed approximately 699 ft of piping and abandoned 34 ft of piping in Section BR10-1. Abandoned piping included a 24 ft length along Halleck Street, east of Building 201, a 10 ft length on the west side of Building 228, and two segments (4 ft and 30 ft long) located west of Building 228. The lengths were abandoned prior to November 1996. During this time, pressure testing was not conducted on piping less than 50 ft long, so no pressure testing data are available for Section BR10-1. The Army collected soil samples from the trench and stockpiles. The sample locations are shown on IT's figure and the data are presented in IT's Table 44-2 and 44-3.

Groundwater was not encountered during the excavation. To address potential TPH impacts to groundwater in the freshwater ecological protection zone, one boring was drilled at location BR10-1SB08 near Building 223 by Halleck Street. The depth to groundwater was approximately 19.5 ft bgs in a grab groundwater sample collected as part of the Section BR10-1 investigation.

Excavation and Remediation:

Trench Length (feet):	699	Was there LTTD in Backfill?:	Yes
Trench Width (feet):	4	Volume LTTD in Backfill (CY):	445
Trench Depth (feet):	3	Was there Overburden in Backfill?:	No
Excavated and Treated Volume (CY):	756		
Leakage Evidence:	Staining of soil was encountered during excavation, and these areas were overexcavated to remove contamination.		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavation and Remediation (continued):

During the initial excavation, the Army collected 25 trench confirmation soil samples per 699 ft of piping removed at Section BR10-1, satisfying the required frequency of 1 sample per 100 ft of trench, and included samples collected at each lateral and change in direction. Two soil samples were collected per 34 ft of abandoned piping, satisfying the required frequency of 1 sample per 50 ft of abandoned piping. Three soil samples were collected from the stockpiled excavated soil. The Army backfilled the trench using imported topsoil.

The Army conducted overexcavations in three areas. Overexcavation No. 3 (225 cy) was located at Halleck Street near Lincoln Boulevard, between Stations 06+75 and 07+75. The average dimensions of the Overexcavation No. 3 were 100 ft long by 15 ft wide with depths varying from 1.5 to 8 ft bgs. Two test pits were excavated in the east lane of Halleck Street (east of the south and central portions of Overexcavation No. 3) to delineate the extent of petroleum hydrocarbon-affected soil. The test pits were excavated to a depth of 5 ft bgs and samples were collected at the pit floors. The Army conducted a second overexcavation (41 cy) near the southeast corner of Building 228, between Stations 00+00 and 01+00. Following the completion of the excavation, some petroleum hydrocarbon-affected soil remained in place along the north wall of the excavation, beneath the foundation of Building 228. The excavation was stopped to prevent compromising the integrity of the Building 228 foundation. A third excavation (149 cy) was conducted adjacent to the northeast corner of Building 220 and Halleck Street, between Stations 03+85 and 05+03. The average dimensions of this excavation were 115 ft long by 7 ft wide, with depths ranging from 4 to 7.5 ft. Many utility lines intersected the excavation.

Soil samples were collected from the floor and sidewalls of the remedial overexcavations at the required frequency of 2 samples per 15 linear ft. The Army collected 14 samples from the Overexcavation No. 3, four samples from the remedial excavation at Building 228, and 15 samples from the excavation at Building 220. The excavated soil from remedial overexcavation was transported to the LTTD unit for treatment. The Army backfilled overexcavations with LTTD-treated soil to 2 ft bgs and imported topsoil to the ground surface. LTTD-treated soils were used to backfill the excavation to ground surface in paved areas.

The Trust review of Army results indicated that concentrations of TPHd and TPHfo in a confirmation soil sample (FB1001W01(6)) collected along the north side of the excavation at Building 228 exceeded applicable cleanup levels. Sample FB1001W01(6) also may potentially contain concentrations of PAHs that exceed applicable cleanup levels. The extent of petroleum hydrocarbon-affected soil remaining in place is limited to soil beneath Building 228; however, the presence of Building 228 limits access for additional remedial excavation. This area is addressed in the 207/231 CAP as part of the Building 228 Remedial Area.

FDS Section BR10-1 is within the Freshwater Ecological Protection Zone. The Trust also indicated that three confirmation soil samples (FB1004W02(3.0), FB1005W01(3.0), and FB1005T02(4.0)) taken from the bottom and sidewalls of the excavation near Building 220 had elevated detection limits of 700 mg/kg for TPH, and therefore may potentially exceed the TPH cleanup levels for freshwater ecological protection zone. However, the extent of potentially contaminated soil is limited, as TPH concentrations in confirmation soil samples from the same pit at depths of 6-7 ft bgs were below applicable cleanup levels. Additionally, no post-treatment data are available for the LTTD-treated soil used as backfill in the three Section BR10-1 excavations.

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavation and Remediation (continued):
In 2007, the Trust collected five overburden (LTTD-treated) soil samples, including one duplicate, and two native soil samples from six locations along Section BR10-1 (locations BR10-1SB01 through BR10-1SB07) to assess remaining concentrations of TPH, PAHs, and BTEX (See Tables 4-6 and Figure 2). Concentrations of TPH were above the freshwater cleanup criterion of 140 mg/kg at sample locations BR10-1SB01, BR10-1SB02, and BR10-1SB05. The maximum TPH concentrations were detected at sample location BR10-1SB02 (360 mg/kg of TPHd and 1,700 mg/kg of TPHfo). Benzo(a)pyrene was detected in one sample (BR10-1SB06(2.0)) at 0.05 mg/kg, and another sample (BR10-1SB07(2.0)) had an elevated reporting limit of 0.056 mg/kg for benzo(a)pyrene. These concentrations are less than the recreational cleanup level of 0.1 mg/kg for benzo(a)pyrene. Four of the seven samples were analyzed for BTEX; BTEX were not detected in any of the four soil samples.

In 2009, the Trust installed boring BR10-SB08 between Buildings 223 and 227 to evaluate potential downgradient impacts from residual TPH. TPHd and TPHfo concentrations in a grab groundwater sample and duplicate sample were either not detected or were below applicable cleanup levels (Table 2).

Reasons for any Abandoned Piping:
None documented.

Conclusion:
Although TPH concentrations exceed the freshwater ecological protection zone cleanup criterion in some soil samples, analytical results for the grab groundwater sample from location BR10-1SB08 and available groundwater data from nearby Fill Site 6A indicate that no significant impact to groundwater has occurred. Therefore, TPH impacts to freshwater aquatic life are not likely.

The area adjacent to Building 228 is being addressed in the Building 207/231 Corrective Action Plan. No further action is recommended for all other portions of Section BR10-1.

Additional Comments:
The IT report text indicated that the Section BR10-1 trench was backfilled with imported topsoil instead of excavated overburden soil. The excavated overburden soil is assumed to have been sent to the LTTD unit for treatment as no disposal information is given.

In addition, the EKI Phase II and Phase III Sampling Report incorrectly identified the applicable cleanup level for Section BR10-1 as residential rather than recreational. Figure 7-1 of the Presidio Trust Cleanup Level Document (Trust, 2002), clearly identifies the Halleck Street area as a recreational cleanup level area.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?	Yes
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?	Yes
Does corrective action protect public health for current land use?	Yes
Site Management Requirements: No further action recommended.	
Monitoring Wells Decommissioned: N/A Number Decommissioned: N/A Number Retained: N/A	
List Enforcement Actions Taken: Regional Water Quality Control Board, Order No. R2-2003-0080.	
List Enforcement Actions Rescinded: None	

V. DOCUMENTS ASSOCIATED WITH SITE

EKI, October 2002. Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California.

EKI, February 2009. Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report, Presidio of San Francisco, California.

EKI, October 2009. Former Fuel Distribution System ("FDS") Area B, Phase III, Field Sampling and Closure Report.

International Technology Corporation, May 1999. Fuel Distribution System Closure Report, Presidio of San Francisco, California,

Regional Water Quality Control Board, Order No. R2-2003-0080.

FUEL DISTRIBUTION SYSTEM REMOVAL REPORT
PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Contract No. DACW05-95-D-0001
Task Order No. 0005
Work Authorization Directive No. 36

Submitted to:

Department of the Army
U.S. Army Corps of Engineers
Sacramento District
1325 "J" Street
Sacramento, California 95814-2922

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

FINAL

May 1999

Issued to:_____Date:_____

44.0 Section BR10-1 (Station 00+00 to 08+00)

44.1 Introduction

Section BR10-1 is located in the northeastern part of the Presidio. A section map and photographs of work at Section BR10-1 are provided as Figures 44-1 and 44-2, respectively.

The predominant features of Section BR10-1 are office and administrative buildings, paved roads, landscaped lawns and gently sloping terrain.

The FDS piping within Section BR10-1 was oriented generally to the north. The piping began on the east side of Building 228, curved along the south side of Building 228, crossed Halleck Street and turned south, following Halleck Street to the Lincoln Boulevard intersection.

Soil Description: Soils in the vicinity of Section BR10-1 consist primarily of undivided surficial deposits (MW, 1995a).

Groundwater Information: Groundwater in the vicinity of Section BR10-1 is encountered at a depth of 9.5 to 15 ft bgs (MW, 1995d). Section BR10-1 is located within the Marina Groundwater Basin and the Northeastern Groundwater Area (MW, 1995d).

44.2 Site Cleanup Requirements

Based on land use at Section BR10-1, SALs for petroleum hydrocarbons and PAHs related to residential, terrestrial ecology and water quality criteria are shown in Table 44-1.

44.3 FDS Excavation

A total of approximately 703 ft of 6-inch diameter piping was removed or abandoned in Section BR10-1. Details on the pipeline, trench and remedial excavations are discussed below.

44.3.1 Pipeline Removal and Abandonment

Details on pipeline removal and abandonment in Section BR10-1 are as follows:

Removal: Approximately 669 ft of piping was removed.

Abandonment: Approximately 34 ft of FDS piping was abandoned in place. Abandoned piping included a 24-ft length along Halleck Street east of Building 201 and a 10-ft length on the west side of Building 228. The lengths were abandoned prior to November 1996, before which pressure testing was not conducted on piping less than 50 ft long. Three soil samples were collected at the ends of the two short segments (30 and 4-ft long) of abandoned piping located west of Building 228.

44.3.2 Trench Excavation

Details on the trench excavation and backfill are as follows:

Trench dimensions: The trench was approximately 669 ft long with an average width of 4 ft and an average depth of 3 ft bgs.

Backfill Information: With the exception of the remedial excavation, the trench was backfilled using imported topsoil.

44.3.3 Remedial Excavations

Details on remedial excavations in Section BR10-1 are as follows:

Station Range: Remedial excavations were conducted at the following areas:

- Overexcavation No. 3 in Halleck Street near Lincoln Boulevard between Stations 06+61 and 07+72 (Figure 44-3). An excavation near the southeast corner of Building 228 between Stations 00+00 and 01+00 (Figure 44-4).

- An excavation adjacent to the northeast corner of Building 220 and Halleck Street between Stations 03+85 and 05+03 (Figure 44-5).

Final Excavation Dimensions: The average dimensions of Overexcavation No. 3 were 100 ft long by 15 ft wide. The depth of Overexcavation No. 3 varied from 1.5 ft bgs on its northeastern end to 8 ft bgs on its southwestern end.

The average dimensions of the excavation near the southeast corner of Building 228 were 20 ft long by 7 ft wide by 6 ft deep.

The average dimensions of the excavation between Stations 3 +50 and 4 +50 near Building 220 were 115 ft long by 7 ft wide. The depth of the excavation ranged from 4 to 7.5 ft deep.

Description of Excavations: Approximately 255 yd^3 of soil were removed during Overexcavation No. 3. Two test pits were excavated in the east lane of Halleck Street, east of the south and central parts of Overexcavation No. 3 to delineate the extent of petroleum hydrocarbon-affected soil. The test pits were excavated to a depth of 5.0 ft and samples were collected at the test pit floors.

Approximately 41 yd^3 of soil were removed during the excavation near the southeast corner of Building 228. Following completion of excavation, some petroleum hydrocarbon-affected soil remained in place along the north wall of the excavation, beneath the foundation of Building 228. However, the excavation was stopped to prevent compromising the integrity of the building foundation.

Approximately 149 yd^3 of soil were removed during the excavation adjacent to Halleck Street and Building 220. This excavation was elongated and sinuous, conducted partly in Halleck Street and partly in the grass yard adjacent to Building 220. Many utility lines intersected the excavation.

Following completion of these excavations, soil samples were collected from the floor and sidewalls of the excavations. Excavated soil was transported to the LTTD unit for treatment. Soil analytical results are discussed in Section 44.4.

The excavation areas were backfilled using treated soils from the LTTD unit to 2 ft bgs and imported top soil to the ground surface. Treated soils were used to the ground surface in paved excavation areas.

44.4 Soil Analytical Results

A list of soil samples representing soil that remained in place after piping removal/abandonment and remedial excavations, corresponding sample depths and analytical results are provided in Table 44-2.

44.4.1 Immunoassay Analytical Results

Results of immunoassay analysis of soil samples for petroleum hydrocarbons and PAHs are provided in Table 44-2. The analytical results indicate that concentrations of petroleum hydrocarbons and PAHs in sample FB1001W01 from the remedial excavation at Building 228, exceeded SALs. Concentrations of petroleum hydrocarbons in samples FB1004T02, from the remedial excavation at Building 220, and FB1007T06, in Overexcavation No. 3, were equal to SALs. Analytical results for soil samples collected at the bottoms of test pits east of Overexcavation No. 3 indicated that concentrations of petroleum hydrocarbons and PAHs were below SALs.

44.4.2 Laboratory Analytical Results

Samples FB1001T03, FB1001W01, FB1004T02, FB1004W06 and FB1005T02 represent soil remaining in place in the excavations and were submitted to an off-site laboratory for analysis. Results of laboratory analysis of soil samples are provided in Table 44-2. Analysis of these samples shows that concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) exceeded SALs in sample FB1001W01 only. Concentrations of PAHs and petroleum hydrocarbons were below SALs in all other samples.

44.4.3 Stockpile Analytical Results

Approximately 148 yd^3 of soil were excavated from the trench in Section BR10-1. Analytical results of 4-point composite soil samples collected from the stockpiled trench soil located at Stations 01+00 and 02+00 are provided in Table 44-3. Discharge criteria for reuse of stockpiled soil are discussed in Section 3.4.3.

Analysis of stockpile samples indicated that petroleum hydrocarbons and PAH concentrations were above discharge criteria in FDSB10S01 and FDSB10S02 , collected f rom Station 1+ 00 stockpiles. Based on these results, all stockpiled soil was transported to the LTTD unit for treatment. Imported topsoil was used to backfill the trenches.

44.5 Conclusions/Recommendations

The following is a summary of the closure criteria specifications for Section BR10-1 of the FDS:

- Twenty-five trench soil samples were collected per 669 ft of piping removed, satisfying the required frequency of 1 sample per 100 ft of trench, and included samples collected at each lateral and change in direction.

- Two soil samples were collected per 34 ft of abandoned piping, satisfying the required frequency of 1 sample per 50 ft of abandoned piping.

- Three soil samples were collected from 148 yd^3 of the stockpiled excavated soil. Overburden soil used as backfill in the excavation trench was below the discharge criteria for petroleum hydrocarbons and PAHs.
- Soil samples were collected from the floor of the remedial excavations at the required frequency of 2 samples per 15 linear feet (14 samples per 108 ft for Overexcavation No. 3; 4 samples per 20 ft for excavation at Building 228; 15 samples per 115 ft for excavation at Building 220).

Concentrations of petroleum hydrocarbons and/or PAHs for soil remaining in place were equal to or exceeded the applicable SALs at three locations in Section BR10-1:

- Concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) and PAHs for soil remaining in place exceeded the applicable SALs in one sample (FB1001W01) collected along the north side of the excavation at Building 228.

  The extent of the petroleum hydrocarbon-affected soil remaining is limited to soil beneath Building 228. The presence of Building 228 limits access for additional excavation without compromising the structural integrity of that building.

- Concentrations of petroleum hydrocarbons in a sample (FB1004T02) on the east side of the excavation adjacent to Building 220 were equal to the SALs when analyzed by immunoassay. Off-site analysis of this sample indicated that concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) and PAHs were below the SALs.

- Concentrations of petroleum hydrocarbons in a sample (FB1007T06) collected from the north-central part of Overexcavation No.3 were equal to the SALs.

In accordance with the BWCAP, a CAP or mini-CAP is appropriate for the excavation adjacent to Building 228. No further action is recommended for all other portions of Section BR10-1.

Table 44-1
Soil Action Levels, Section BR10-1
Fuel Distribution System Removal Report

Presidio of San Francisco

Target Compound	Soil Action Level (mg/kg[a])	Criteria
Depth Range: 0-3 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	700	Ecological (terrestrial)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	980	Ecological (terrestrial)
Total Carcinogenic PAHs[b]	5.6	Human health (residential)
Depth Range: 3-4.5 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	1,380	Human health (residential)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	1,900	Human health (residential)
Total Carcinogenic PAHs	5.6	Human health (residential)
Depth Range: 4.5-10 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	115	Water quality (<5 ft above water table)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	160	Water quality (<5 ft above water table)
Total Carcinogenic PAHs	5.6	Human health (residential)

[a]mg/kg - milligrams per kilogram
[b]PAHs - Polycyclic Aromatic Hydrocarbons

checked by: _____ 4-17-99

approved by: _____ 5.20.99

Table 44-2
Excavation Soil Analytical Results, Section BR10-1
Fuel Distribution System Removal Report

Presidio of San Francisco
(page 1 of 3)

Sample Designation (depth)[a] date	Petroleum Hydrocarbons by EPA 8015 Modified[b] (mg/kg[c])		Total Petroleum Hydrocarbons by Immunoassay (mg/kg)	Carcinogenic PAHs[d] by EPA 8310[b] (mg/kg)						Total PAHs by Immunoassay (mg/kg)
	Diesel Range (C12-C24)	Fuel Oil Range (C24-C36)		Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Total Carcinogenic	
FB1001T01 (3.5) 8/15/96	NA[e]	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1001T02 (2.5) 8/15/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1001T03 (8.5) 8/19/96	<1.1	3.3	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1001T05 (2.0) 8/21/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1001W01 (6.0) 8/19/96	**2,500[f]**	**2,400**	**>1,596**	NA	NA	NA	NA	NA	NA	**>5.6**
FB1001W02 (6.0) 8/21/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1001W03 (6.0) 8/21/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1002T01 (4.2) 8/12/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1002T03 (4.5) 8/14/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1003T01 (2.0) 8/6/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1004T01 (7.3) 7/15/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.52
FB1004T02 (6.0) 7/22/96	63	84	115	<0.017	<0.017	<0.017	<0.017	<0.017	<0.085	<5.6
FB1004T03 (7.5) 7/22/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1004T05 (4.0) 7/31/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	5.55
FB1004T06 (7.0) 7/31/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1004T08 (4.0) 8/1/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6

Table 44-2
Excavation Soil Analytical Results, Section BR10-1
Fuel Distribution System Removal Report

Presidio of San Francisco
(page 2 of 3)

Sample Designation (depth) date	Petroleum Hydrocarbons by EPA 8015 Modified (mg/kg)		Total Petroleum Hydrocarbons by Immunoassay (mg/kg)	Carcinogenic PAHs by EPA 8310 (mg/kg)						Total PAHs by Immunoassay (mg/kg)
	Diesel Range (C12-C24)	Fuel Oil Range (C24-C36)		Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Total Carcinogenic	
FB1004W01 (4.9) 7/15/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.52
FB1004W02 (3.0) 7/15/96	NA	NA	<700	NA	NA	NA	NA	NA	NA	<5.6
FB1004W03 (7.5) 7/24/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1004W06 (5.0) 7/24/96	<1.1	2.6	<115	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0085	<5.6
FB1004W07 (7.0) 7/31/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1004W08 (5.0) 7/31/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1005T02 (4.0) 7/11/96	<1.2	12	<700	NA	NA	NA	NA	NA	NA	<5.52
FB1005T03 (6.0) 7/16/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1005W01 (3.0) 7/16/96	NA	NA	<700	NA	NA	NA	NA	NA	NA	<5.52
FB1005W04 (7.0) 7/16/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007T02 (6.0) 7/23/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007T06 (5.5) 7/23/96	NA	NA	115	NA	NA	NA	NA	NA	NA	<5.6
FB1007T08 (5.0) 7/25/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007T12 (7.0) 7/30/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007T14 (6.0) 7/30/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007W01 (4.5) 7/25/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6

Table 44-2
Excavation Soil Analytical Results, Section BR10-1
Fuel Distribution System Removal Report

Presidio of San Francisco
(page 3 of 3)

Sample Designation (depth) date	Petroleum Hydrocarbons by EPA 8015 Modified (mg/kg)		Total Petroleum Hydrocarbons by Immunoassay (mg/kg)	Carcinogenic PAHs by EPA 8310 (mg/kg)						Total PAHs by Immunoassay (mg/kg)
	Diesel Range (C12-C24)	Fuel Oil Range (C24-C36)		Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Total Carcinogenic	
FB1007W02 (5.0) 7/29/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007W03 (6.0) 7/29/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1007W06 (6.5) 7/30/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1008T06 (4.5) 7/25/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1008T09 (8.0) 7/30/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1008T10 (5.0) 8/1/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1008T11 (5.0) 8/1/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FB1008W01 (5.5) 7/25/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.6
FDSB1006T01 (2.7) 7/2/96	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0

[a](depth) - Sample depth in feet below original ground surface
[b]U.S. Environmental Protection Agency, 1996, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Washington, DC.
[c]mg/kg - milligrams per kilogram
[d]PAHs - polycyclic aromatic hydrocarbons
[e]NA - not analyzed
[f]bold text indicates concentration exceeds Soil Action Level

checked by: C. P. 5/21/98

approved by: [signature] 5-21-98

Table 44-3
Stockpile Soil Analytical Results, Section BR10-1
Fuel Distribution System Removal Report

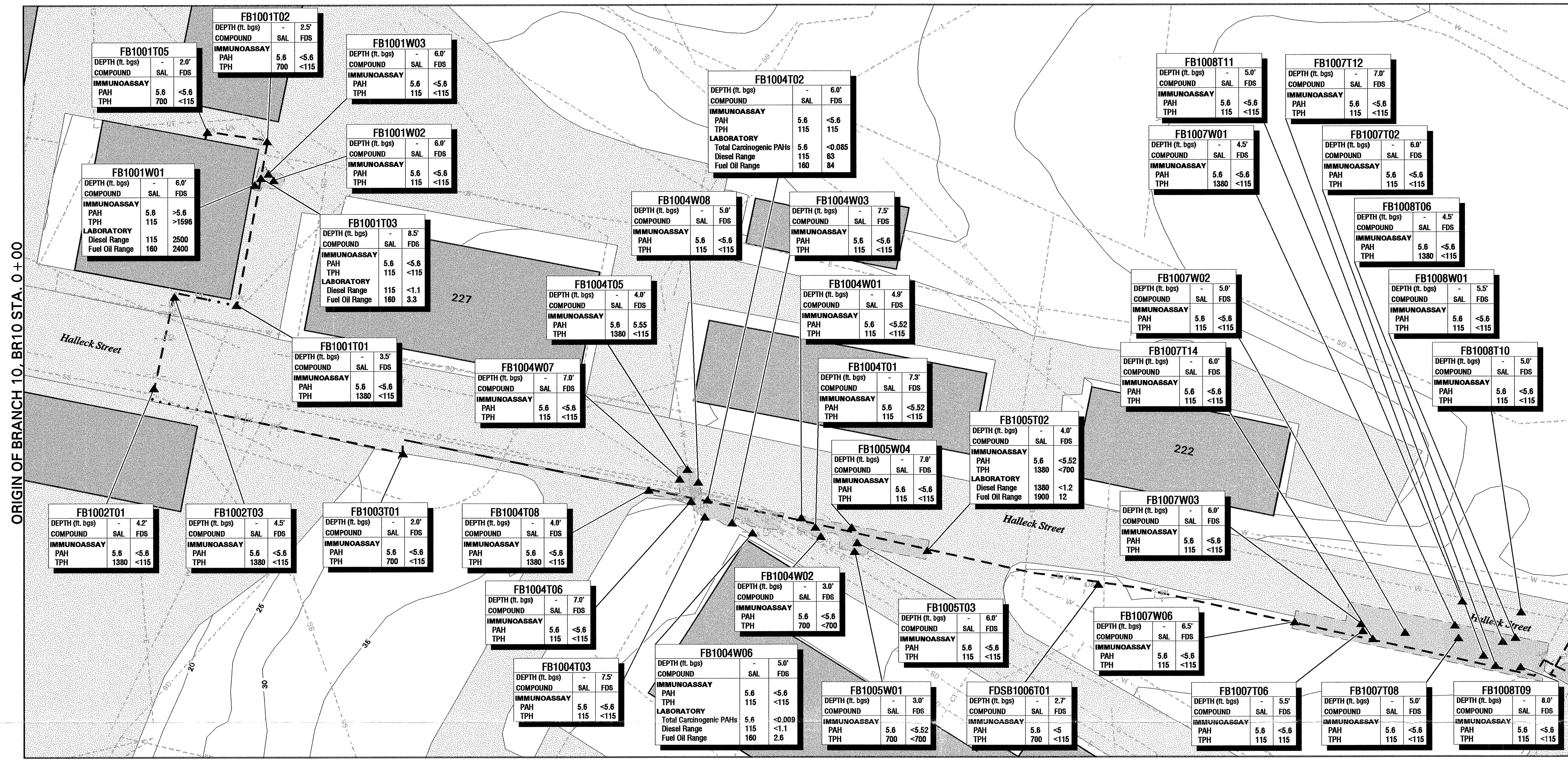
Presidio of San Francisco

Sample Designation	Collection Date	Total Petroleum Hydrocarbons by Immunoassay (mg/kg[a])	Total PAHs[b] by Immunoassay (mg/kg)
FDSB10S01	06/25/96	**>100**	<1
FDSB10S02	06/28/96	**>100**	<1
FB1002S02	08/13/96	<100	<5.6

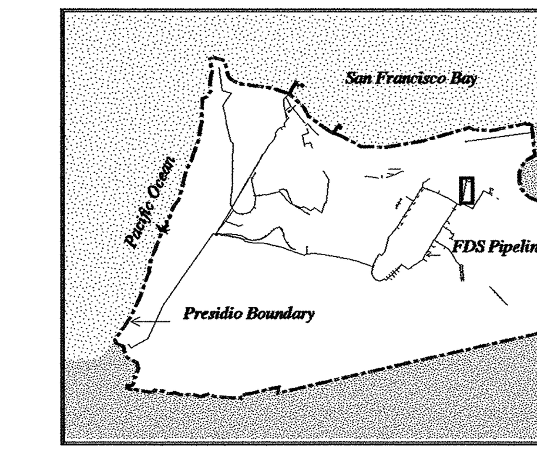
[a]mg/kg - milligrams per kilogram
[b]PAHs - polycyclic aromatic hydrocarbons

checked by: Tony Bans 4/17/98

approved by: [signature] 5-20-98



ORIGIN OF BRANCH 10, BR10 STA. 0+00
MATCH LINE BR10 STA. 8+00
PLAN VIEW
Halleck Street
227
222
FB1001T05 — DEPTH (ft. bgs) - 2.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 700 <115
FB1001T02 — DEPTH (ft. bgs) - 2.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 700 <115
FB1001W03 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1001W02 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1001W01 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 >5.6 — TPH 115 >1596 — LABORATORY — Diesel Range 115 2500 — Fuel Oil Range 160 2400
FB1001T03 — DEPTH (ft. bgs) - 8.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115 — LABORATORY — Diesel Range 115 <1.1 — Fuel Oil Range 160 3.3
FB1001T01 — DEPTH (ft. bgs) - 3.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1004T02 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 115 — LABORATORY — Total Carcinogenic PAHs 5.6 <0.085 — Diesel Range 115 63 — Fuel Oil Range 160 84
FB1004W08 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004W03 — DEPTH (ft. bgs) - 7.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004T05 — DEPTH (ft. bgs) - 4.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 5.55 — TPH 1380 <115
FB1004W01 — DEPTH (ft. bgs) - 4.9' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.52 — TPH 115 <115
FB1004W07 — DEPTH (ft. bgs) - 7.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004T01 — DEPTH (ft. bgs) - 7.3' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.52 — TPH 115 <115
FB1005W04 — DEPTH (ft. bgs) - 7.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1005T02 — DEPTH (ft. bgs) - 4.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.52 — TPH 1380 <700 — LABORATORY — Diesel Range 1380 <1.2 — Fuel Oil Range 1900 12
FB1008T11 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1007T12 — DEPTH (ft. bgs) - 7.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1007W01 — DEPTH (ft. bgs) - 4.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1007T02 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1008T06 — DEPTH (ft. bgs) - 4.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1007W02 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1008W01 — DEPTH (ft. bgs) - 5.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1007T14 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1008T10 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1007W03 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1002T01 — DEPTH (ft. bgs) - 4.2' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1002T03 — DEPTH (ft. bgs) - 4.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1003T01 — DEPTH (ft. bgs) - 2.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 700 <115
FB1004T08 — DEPTH (ft. bgs) - 4.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 1380 <115
FB1004T06 — DEPTH (ft. bgs) - 7.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004W02 — DEPTH (ft. bgs) - 3.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 700 <700
FB1005T03 — DEPTH (ft. bgs) - 6.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1007W06 — DEPTH (ft. bgs) - 6.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004T03 — DEPTH (ft. bgs) - 7.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1004W06 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115 — LABORATORY — Total Carcinogenic PAHs 5.6 <0.009 — Diesel Range 115 <1.1 — Fuel Oil Range 160 2.6
FB1005W01 — DEPTH (ft. bgs) - 3.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.52 — TPH 700 <700
FDSB1006T01 — DEPTH (ft. bgs) - 2.7' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5 — TPH 700 <115
FB1007T06 — DEPTH (ft. bgs) - 5.5' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 115
FB1007T08 — DEPTH (ft. bgs) - 5.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
FB1008T09 — DEPTH (ft. bgs) - 8.0' — COMPOUND SAL FDS — IMMUNOASSAY — PAH 5.6 <5.6 — TPH 115 <115
20
25
30
35



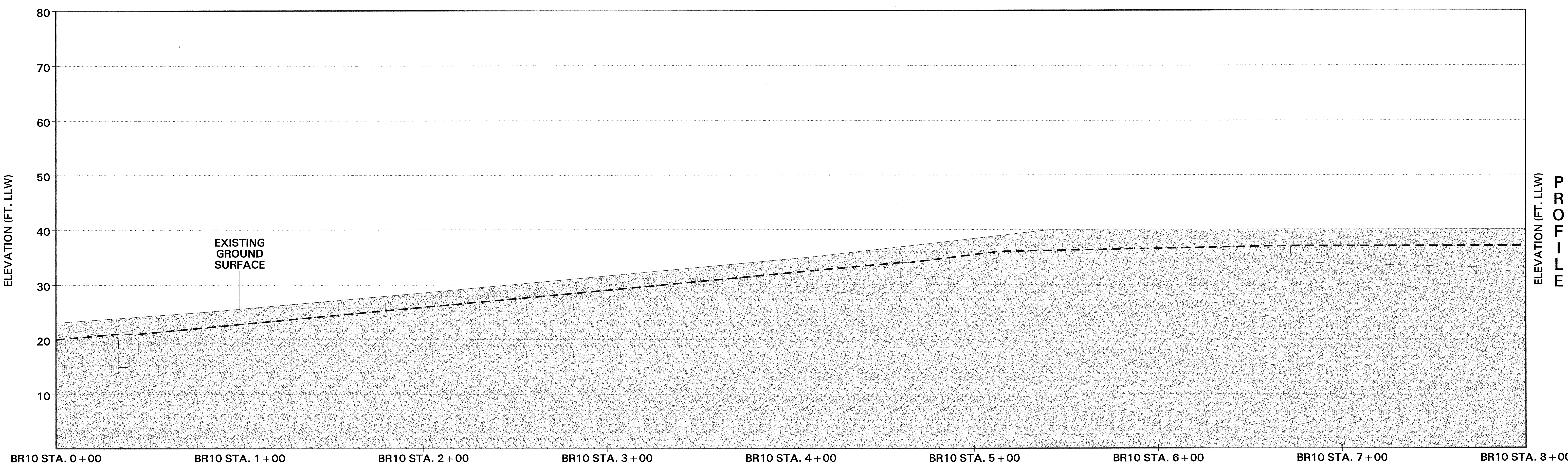
FDS INDEX MAP (DRAWN AT 1' = 60,000')

Legend:

E	Electric Line
G	Gas Line
IRR	Irrigation Line
SD	Storm Drain Line
SS	Sanitary Sewer Line
T	Telephone Line
W	Water Line
CT	Cable TV Line
FO	Fiber Optic Line
SL	Street Light Line
U	Unknown Line
XA	Abandoned Utility Line Letter Designates Utility Type A Designates Abandoned
	Pavement
	Building and Identification No.
	Excavation
	Limit of Excavation
	Removed FDS Pipeline
	Abandoned In Place FDS Pipeline
	Previously Removed FDS Pipeline
	Topographic Contour (Contour Interval: 5ft.)
	Fence
	Removed Structure (except tanks)
▲	Soil Sample
FB0112T02	Soil Sample Identification No.
POST018	LTTD Soil Sample Identification No.
NA	Not Analyzed
NAP	Not Applicable
SAL	Soil Action Level Established in SCRs (RWQCB, 1996)
RS	Immunoassay Result Superseded by Laboratory PAH Analysis

Notes:

1. Vertical Datum: Presidio Lower Low Water (LLW)
2. All concentrations in mg/kg unless noted otherwise
3. The area around removed pipeline was excavated to a width of 2.5-5 ft.
4. All soil samples collected from the final limit of excavation
5. If no LTTD sample identification no., trench backfilled with clean fill
6. Excavations backfilled with thermally treated soils (See table below for analytical results)



HORIZONTAL SCALE: 1" = 30'

VERTICAL SCALE: 1" = 10'

0 15 30

feet

REVISION	DATE	DESCRIPTION	BY	BY
1	04-02-99	FDS PIPELINE REMOVAL, SUBMITTAL TO USACE		

MONTGOMERY WATSON

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: E. MAKHLOUF
DRAWN: I. KENNEDY
CHECKED:

PRESIDIO OF SAN FRANCISCO *CALIFORNIA*

REMOVAL / ABANDONMENT OF FUEL DISTRIBUTION SYSTEM PIPELINE
AS-BUILT
BR10 STATION 0+00 TO 8+00

SUBMITTED:
DATE APPROVED:
SCALE:
SPEC. No.
SHEET BR10-1
FILE No.

Figure 44-2 - Photographs, Section BR10-1

Date: August 1, 1996

Overexcavation No. 3 in progress, on Halleck Street. Several hundred cubic yards of soil were eventually removed from this excavation. This view is to the north.

Date: August 1, 1996

The backfilling of test pits on Halleck Street facing north. Overexcavation No. 3 is to the left.

PREPARED FOR	PRESIDIO OF SAN FRANCISCO USACE SACRAMENTO DISTRICT TERC
CONTRACT NUMBER	DACW05-D-95-0001 D.O. 0005, WAD 36
DRAWN BY	T.R.S. 4/19/99
CHECKED BY	DFS
APPROVED BY	PEL
DRAWING NUMBER	762491-B135 5-19-99 5-20-99

222

HALLECK ST.

TEST PIT

TEST PIT

FB1008T11(5.0)
TPH<115
PAH<5.6

FB1008T10(5.0)
TPH<115
PAH<5.6

FB1007W03(6.0)
TPH<115
PAH<5.6

1.5 ft.

FB1007W02(5.0)
TPH<115
PAH<5.6

FB1007W01(4.5)
TPH<115
PAH<5.6

FB1007W06(6.5)
TPH<115
PAH<5.6

6 ft.

FB1007T06(5.5)
TPH=115
PAH<5.6

FB1007T14(6.0)
TPH<115
PAH<5.6

FB1007T08(5.0)
TPH<115
PAH<5.6

5 ft.

FB1008W01(5.5)
TPH<115
PAH<5.6

FB1008T06(4.5)
TPH<115
PAH<5.6

12-in. DIA. CONCRETE LINE (ABANDONED)

8 ft.

FB1007T12(7.0)
TPH<115
PAH<5.6

FDS (REMOVED)

FB1007T02(6.0)
TPH<115
PAH<5.6

FB1008T09(8.0)
TPH<115
PAH<5.6

8 ft.

LEGEND:

- U — UNKNOWN LINE
- PAVEMENT
- 222 — BUILDING AND IDENTIFICATION NO.
- EXCAVATION
- LIMIT OF EXCAVATION
- REMOVED FUEL DISTRIBUTION SYSTEM PIPELINE
- ▲ SOIL SAMPLE
- FB1007W05(4.0) — SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)

NOTES:

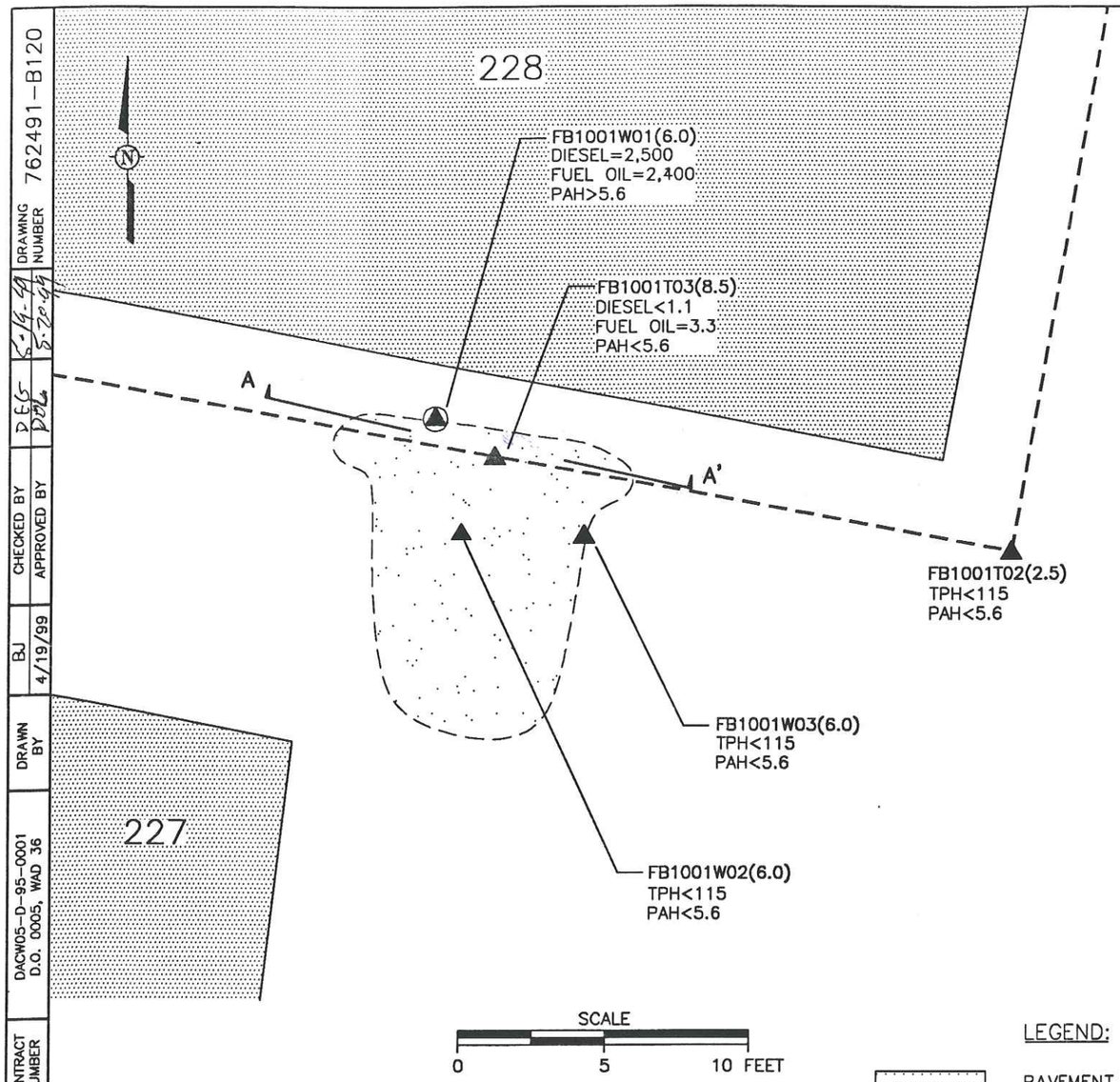
1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – TOTAL POLYCYCLIC AROMATIC HYDROCARBONS
4. FDS – FUEL DISTRIBUTION SYSTEM

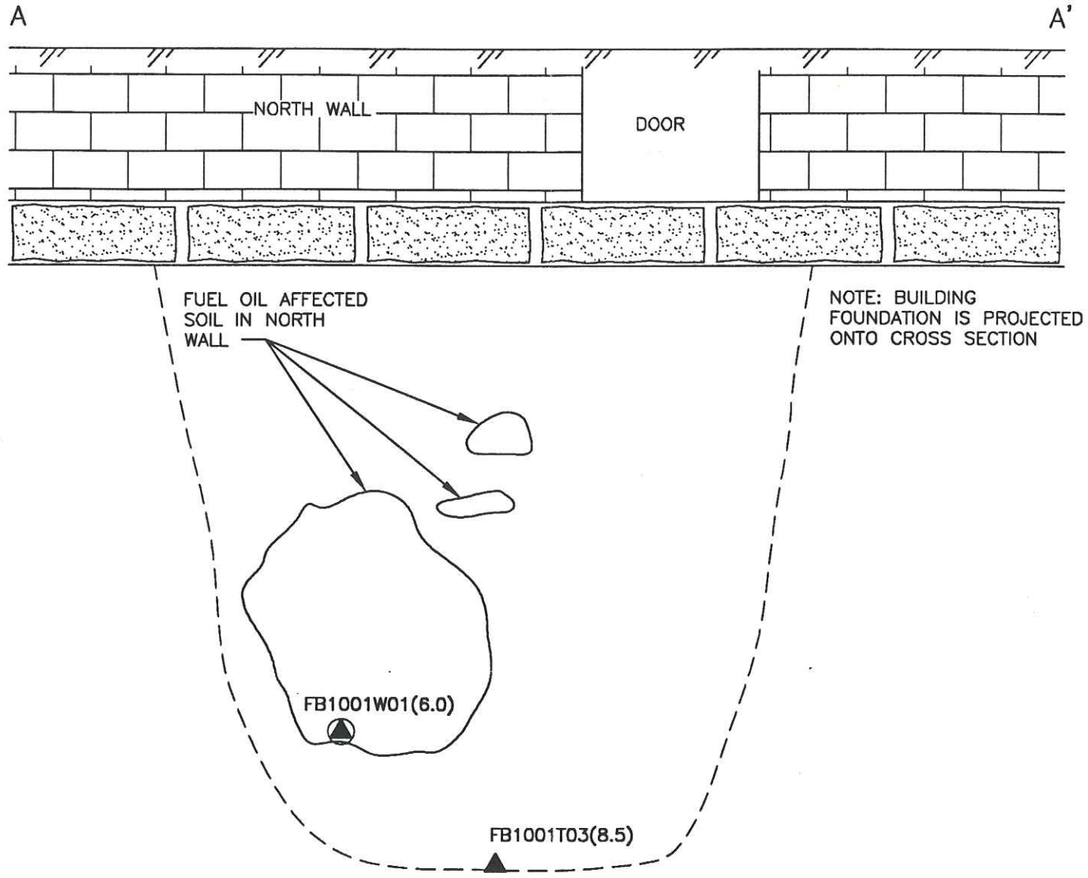
FIGURE 44-3

SECTION BR10-1
OVEREXCAVATION NO. 3

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION





CROSS SECTION A–A'

HORIZONTAL & VERTICAL SCALE

0 2 4 FEET

LEGEND:

- PAVEMENT
- 228 — BUILDING AND IDENTIFICATION NO.
- EXCAVATION
- LIMIT OF EXCAVATION
- REMOVED FUEL DISTRIBUTION SYSTEM PIPELINE
- SOIL SAMPLE
- FB1001W01(6.0) — SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)
- SOIL ANALYTICAL RESULTS ABOVE SOIL ACTION LIMITS

NOTES:

1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – TOTAL POLYCYCLIC AROMATIC HYDROCARBONS
4. DIESEL – PETROLEUM HYDROCARBON IN DIESEL RANGE (C12–C24)
5. FUEL OIL – PETROLEUM HYDROCARBONS IN FUEL OIL RANGE (C24–C36)

FIGURE 44–4

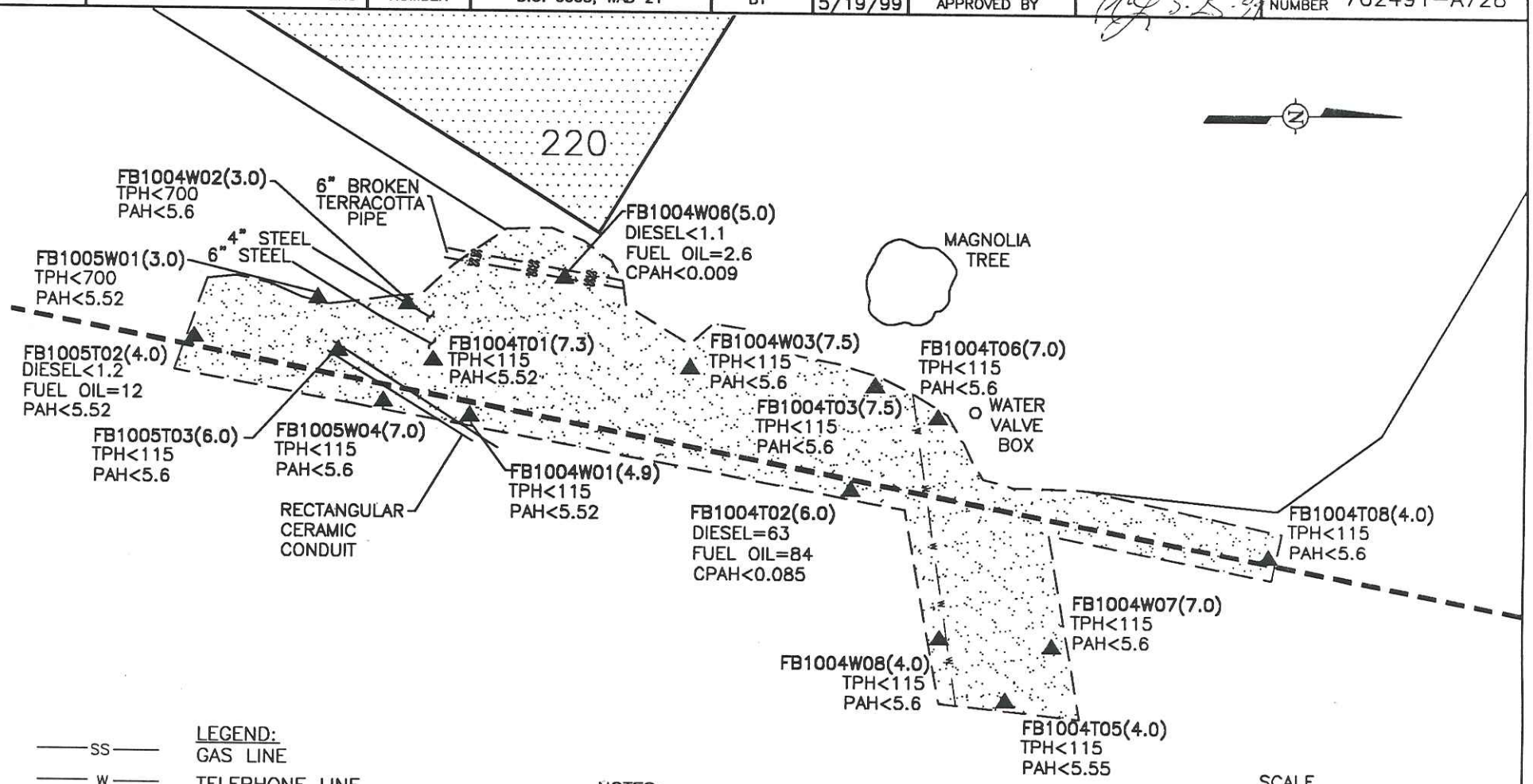
SECTION BR10–1
EXCAVATION AT
BUILDING 228

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION

PREPARED FOR	PRESIDIO OF SAN FRANCISCO USACE SACRAMENTO DISTRICT TERC
CONTRACT NUMBER	DACW05–D–95–0001 D.O. 0005, WAD 36
DRAWN BY	BJ 4/19/99
CHECKED BY	P.E.S. 5-20-99
APPROVED BY	D.B.L. 5-20-99
DRAWING NUMBER	762491–B120

PREPARED FOR	PRESIDIO OF SAN FRANCISCO USACE SACRAMENTO DISTRICT TERC	CONTRACT NUMBER	DACW05-D-95-0001 D.O. 0005, WAD 21	DRAWN BY	VJR 5/19/99	CHECKED BY / APPROVED BY	WK 5/25/99	DRAWING NUMBER	762491-A728



LEGEND:

- SS — GAS LINE
- W — TELEPHONE LINE
- 220 — BUILDING AND IDENTIFICATION NO.
- EXCAVATION
- LIMIT OF EXCAVATION
- REMOVED FUEL DISTRIBUTION SYSTEM PIPELINE
- ▲ SOIL SAMPLE
- FB1004W04(6.5) SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)

NOTES:

1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – TOTAL POLYCYCLIC AROMATIC HYDROCARBONS
4. DIESEL – PETROLEUM HYDROCARBONS IN DIESEL RANGE (C12–C24)
5. FUEL OIL – PETROLEUM HYDROCARBONS IN FUEL OIL RANGE (C24–C36)
6. CPAH – TOTAL CARCINOGENIC PAHs

FIGURE 44-5

SECTION BR10-1
EXCAVATION AT BULDING 220

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION

c:\dwgs\fds\sbeab220

Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report

Presidio of San Francisco
California

February 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total
FDS Section BR7-2														
BR7-2SB02	BR7-2SB02(1.5)	9/28/2007	1.5	HH-Rec	HH-Rec	overburden	<1.2	<5.9	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	DUP-2-092807	9/28/2007	1.5	HH-Rec	HH-Rec	overburden	<1.2	<6	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
FDS Section BR10-1														
BR10-1SB01	BR10-1SB01(2.0)	9/27/2007	2	Eco-FW	HH-Res	overburden (LTTD)	41 Y	**390**	0.016 J	0.014 J	0.033 J	0.013 J	0.024 J	0.1
BR10-1SB02	BR10-1SB02(3.0)	9/27/2007	3	Eco-FW	HH-Res	native	**360 Y**	**1,700**	--	--	--	--	--	--
BR10-1SB03	BR10-1SB03(3.0)	9/26/2007	3	Eco-FW	HH-Res	native	4.9 Y	31	--	--	--	--	--	--
BR10-1SB05	BR10-1SB05(2.0)	10/1/2007	2	Eco-FW	HH-Res	overburden (LTTD)	100 Y	**190**	0.042	0.028	0.071	0.02	0.088	0.249
BR10-1SB06	BR10-1SB06(2.0)	10/1/2007	2	Eco-FW	HH-Res	overburden (LTTD)	44 Y	55	0.031 J	**0.05 J**	0.046 J	0.015 J	0.049 J	0.191
	DUP-3-100107	10/1/2007	2	Eco-FW	HH-Res	overburden (LTTD)	46 Y	69	0.023 J	0.011 J	0.041	0.011 J	0.029	0.115
BR10-1SB07	BR10-1SB07(2.0)	10/1/2007	2	Eco-FW	HH-Res	overburden (LTTD)	24 Y	63	<0.056	**<0.056**	0.018 J	<0.056	<0.056	0.018
FDS Section BR10-2														
BR10-2SB01	BR10-2SB01(3.0)	10/9/2007	3	Eco-FW	HH-Res	native	**430 Y**	**1,200**	--	--	--	--	--	--
FDS Section BR10-3														
BR10-3SB02	BR10-3SB02(1.5)	9/26/2007	1.5	Eco-FW	HH-Res	overburden	11 Y	61	0.0015 J	0.0013 J	0.0021 J	<0.0051	0.0017 J	0.0066
FDS Section BR12-1														
BR12-1SB01	BR12-1SB01(2.0)	9/24/2007	2	HH-Res	HH-Res	native	13 Y	14	--	--	--	--	--	--
BR12-1SB03	BR12-1SB03(5.5)	9/24/2007	5.5	HH-Res	HH-Res	native	44 Y	140	--	--	--	--	--	--
FDS Section BR13-1														
BR13-1SB01	BR13-1SB01(2.0)	9/28/2007	2	Eco-FW	HH-Res	overburden	9.6 Y	82	--	--	--	--	--	--
BR13-1SB02	BR13-1SB02(2.0)	9/26/2007	2	Eco-FW	HH-Res	overburden	30 Y	140	0.075	**0.061**	0.11	0.033 J	0.069	0.348
BR13-1SB03	BR13-1SB03(5.0)	10/1/2007	5	Eco-FW	HH-Res	native	<1.1	<5.6	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0275
>5 GW							**15,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value. Plus sign indicates numerical value has high bias.
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater
<5 CF (Table 5) Soil Cleanup Levels for Crissy Field, < 5 feet above the hightest groundwater
<5 MCL (Table 4) Soil Cleanup Levels for the Protection of Water Quality at Drinking Water Standards, < 5 feet above the highest groundwater
Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream
Eco-SW (Table 6) Point-of-Compliance Concentrations for Soil and Water for Petroleum Hydrocarbons, BTEX, and MTBE for the Saltwater Protection Zone
Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

TABLE 5
SUMMARY OF SOIL RESULTS FOR BTEX
Presidio FDS
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	BTEX Criteria	Analytical Results (mg/kg - dry weight)					
					Benzene	Ethylbenzene	Toluene	m,p-Xylenes	o-Xylene	Xylenes, Total
BR10-1										
BR10-1SB01	BR10-1SB01(2.0)	9/27/2007	2	Eco-FW	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
BR10-1SB05	BR10-1SB05(2.0)	10/1/2007	2	Eco-FW	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.009
BR10-1SB06	BR10-1SB06(2.0)	10/1/2007	2	Eco-FW	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094
	DUP-3-100107	10/1/2007	2	Eco-FW	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094
BR10-1SB07	BR10-1SB07(2.0)	10/1/2007	2	Eco-FW	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094
Applicable Cleanup Levels										
Eco-FW					**0.79**	**15**	**3**	**na**	**na**	**5.7**

Abbreviations:
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
BTEX - Benzene, Toluene, Ethylbenzene, m,p-Xylene and o-Xylene
Eco-FW Ecological freshwater protection criteria. Cleanup levels from Order Water Board Order R2-2003-0080.

Notes:
(a) Samples were analyzed by EPA Method 8021.

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section BR5-3																						
BR5-3SB01	BR5-3SB01(2.5)	9/25/2007	2.5	HH-Res	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.13
BR5-3SB02	BR5-3SB02(2.5)	9/25/2007	2.5	HH-Res	<0.0053	<0.0053	<0.0053	0.00092 J	0.0041 J	0.0014 J+	0.00094 J	<0.0053	0.00088 J	<0.0053	<0.0053	<0.0053	0.00072 J	<0.0053	<0.0053	<0.0053	0.0012 J	0.0073
BR5-3SB03	BR5-3SB03(2.5)	9/25/2007	2.5	HH-Res	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.026
BR5-3SB04	BR5-3SB04(2.5)	9/25/2007	2.5	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
FDS Section BR6-1																						
BR6-1SB01	BR6-1SB01(1.5)	9/25/2007	1.5	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
	DUP-1-092507	9/25/2007	1.5	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
BR6-1SB02	BR6-1SB02(1.5)	9/25/2007	1.5	HH-Res	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.026
BR6-1SB03	BR6-1SB03(1.5)	9/28/2007	1.5	HH-Res	<0.011	<0.011	<0.011	0.0022 J	0.0032 J	0.004 J	0.0021 J	<0.011	0.0025 J	<0.011	0.0026 J	<0.011	0.0017 J	0.0017 J	<0.011	0.0019 J	0.0031 J	0.0119
FDS Section BR6-3																						
BR6-3SB02	BR6-3SB02(2.5)	9/26/2007	2.5	HH-Rec	<0.0059	<0.0059	<0.0059	0.0011 J	<0.0059	0.0015 J	0.00086 J	<0.0059	<0.0059	<0.0059	0.0012 J	<0.0059	<0.0059	0.0052 J	<0.0059	0.00086 J	0.0016 J	0.0026
FDS Section BR7-1																						
BR7-1SB01	BR7-1SB01(1.5)	9/28/2007	1.5	HH-Rec	<0.011	<0.011	<0.011	0.0025 J	0.0018 J	0.0037 J	0.0022 J	<0.011	0.0031 J	<0.011	0.003 J	<0.011	<0.011	0.0026 J	0.0022 J	0.0047 J	0.0041 J	0.0111
BR7-1SB02	BR7-1SB02(1.5)	9/28/2007	1.5	HH-Rec	<0.0053	<0.0053	<0.0053	0.0019 J	0.0018 J	0.0061	0.0035 J	0.0009 J	0.007	0.00058 J	0.0038 J	0.0019 J	0.0015 J	0.0094	0.0028 J	0.016	0.0073	0.0177
FDS Section BR7-2																						
BR7-2SB01	BR7-2SB01(1.5)	10/9/2007	1.5	HH-Rec	<0.12	<0.12	<0.12	0.063 J	**0.11 J**	0.37 J+	0.33	0.088 J	0.063 J	0.071 J	0.046 J	<0.12	0.2	0.11 J	<0.12	0.028 J	0.059 J	0.694
BR7-2SB02	BR7-2SB02(1.5)	9/28/2007	1.5	HH-Rec	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	DUP-2-092807	9/28/2007	1.5	HH-Rec	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
FDS Section BR10-1																						
BR10-1SB01	BR10-1SB01(2.0)	9/27/2007	2	HH-Res	<0.056	<0.056	<0.056	0.016 J	0.014 J	0.033 J	0.03 J	0.013 J	0.024 J	<0.0566 J	0.019 J	<0.056	0.014 J-	0.011 J	<0.056	0.013 J	0.019 J	0.1
BR10-1SB05	BR10-1SB05(2.0)	10/1/2007	2	HH-Res	0.003 J	0.0063 J	0.016 J	0.042	0.028	0.071	0.024	0.02	0.088	0.0064 J	0.12	0.01 J	0.017	0.022	0.013 J	0.12	0.22	0.249
BR10-1SB06	BR10-1SB06(2.0)	10/1/2007	2	HH-Res	<0.055	<0.055	<0.055	0.031 J	**0.05 J**	0.046 J	0.024 J	0.015 J	0.049 J	<0.055	0.1	<0.055	0.015 J	0.014 J	0.0089 J	0.049 J	0.067	0.191
	DUP-3-100107	10/1/2007	2	HH-Res	<0.028	<0.028	0.0097 J	0.023 J	0.011 J	0.041	0.015 J	0.011 J	0.029	<0.028	0.084	0.0051 J	0.0083 J	0.032	0.0047 J	0.072	0.067	0.115
BR10-1SB07	BR10-1SB07(2.0)	10/1/2007	2	HH-Res	<0.056	<0.056	<0.056	<0.056	<0.056	0.018 J	0.012 J	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	0.051 J	<0.056	0.0073 J	<0.056	0.018
FDS Section BR10-3																						
BR10-3SB02	BR10-3SB02(1.5)	9/26/2007	1.5	HH-Res	<0.0051	<0.0051	<0.0051	0.0015 J	0.0013 J	0.0021 J	0.0012 J	<0.0051	0.0017 J	<0.0051	0.0028 J	<0.0051	<0.0051	0.0046 J	<0.0051	0.0014 J	0.0039 J	0.0066
FDS Section BR13-1																						
BR13-1SB02	BR13-1SB02(2.0)	9/26/2007	2	HH-Res	0.0075 J	<0.052	0.033 J	0.075	**0.061**	0.11	0.03 J	0.033 J	0.069	0.01 J	0.14	<0.052	0.027 J	<0.052	<0.052	0.087	0.12	0.348
BR13-1SB03	BR13-1SB03(5.0)	10/1/2007	5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	<0.0275
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section MT-15																						
MT-15SB03	MT-15SB03(3.5)	9/28/2007	3.5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.00088 J	<0.0055	<0.0055	<0.0055	<0.0055	0.00096 J	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.0012 J	0.00088
FDS Section MT-16																						
MT-16SB01	MT-16SB01(1.5)	9/26/2007	1.5	HH-Res	<0.027	<0.027	<0.027	0.006 J	0.011 J	0.017 J	0.014 J	0.0059 J	<0.027	<0.0277 J	0.0077 J	<0.027	<0.0277 J	0.027 J	<0.027	0.0069 J	0.011 J	0.0399
MT-16SB02	MT-16SB02(1.5)	9/26/2007	1.5	HH-Res	<0.0059	0.0089	0.0036 J	0.018	0.029 J	0.034 J	0.034 J	0.0095 J	0.019	0.0067 J	0.0092	<0.0059	0.023 J	0.0059 J	<0.0059	0.003 J	0.02	0.11
MT-16SB03	MT-16SB03(1.5)	9/26/2007	1.5	HH-Res	0.00088 J	0.0015 J	0.0053 J	0.019	0.021	0.028	0.013 J+	0.012	0.026	0.012	0.028	0.0012 J	0.015	0.0043 J	0.0024 J	0.017	0.035	0.106
FDS Section MT-17																						
MT-17SB03	MT-17SB03(3.5)	9/27/2007	3.5	HH-Res	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.028
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
PAHs - Polynuclear Aromatic Hydrocarbons
CI - see narrative
J - estimated value
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Former Fuel Distribution System ("FDS") Area B Phase III Field Sampling and Closure Report

Presidio of San Francisco
California

October 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 2
SUMMARY OF GROUNDWATER RESULTS FOR TPH
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	TPH Criteria	Analytical Results (ug/L)	
				TPH Diesel	TPH Fuel Oil
FDS Section BR10-1					
BR10-1SB08	BR10-1SB08	5/19/2009	FWS/SW	<50	<300
	DUP1-051909	5/19/2009	FWS/SW	72 Y,J-	<380 UJ
Applicable Cleanup Levels					
FWS/SW (Note 1)				**443**	**443**

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
FWS/SW - Freshwater Seep/Surface Water
ug/L - Micrograms per liter
TPH - Total Petroleum Hydrocarbons
Y - chromatographic pattern does not resemble standard
J - estimated value
UJ - analyte not detected above reported limit, but limit is approximate

Note:
1. The Freshwater Seep/Surface Water cleanup level is taken from the Presidio-wide Cleanup Level Document (EKI, 2002).

Cleanup Levels ("CULs") (mg/kg)					
Depth Range (ft bgs)	Basis for TPHd/fo CULs	TPHd	TPHfo	Basis for cPAH CULs	Total cPAHs
<3	Ecological, Freshwater	140	140	Human Health, Residential	5.6
3-10	Ecological, Freshwater	140	140	Human Health, Residential	5.6
>10	Ecological, Freshwater	140	140	--	--

231GW09

Additional Remediation Addressed in Building 207 / 231 CAP (not included in this closure request)

FB1001W01

Army Data, 1996					
Sample ID	Sample Date	TPHd	TPHfo	TPHi	PAHi
FB1001W01(6.0)	8/19/1996	**2,500**	**2,400**	**>1,596**	**>5.6**

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB02(3.0)	9/27/2007	**360** Y	**1,700**	--

Army Data, 1996			
Sample ID	Sample Date	TPHi	PAHi
FB1004W02(3.0)	7/15/1996	**<700**	<5.6

EKI Data, 2007				
Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB03(3.0)	9/26/2007	4.9 Y	31	--

Army Data, 1996			
Sample ID	Sample Date	TPHi	PAHi
FB1005W01(3.0)	7/16/1996	<700	<5.52

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB05(2.0)	10/1/2007	100 Y	**190**	0.249

EKI Groundwater Data, 2009 (ug/L)			
Sample ID	Sample Date	TPHd	TPHfo
BR10-1SB08	5/19/2009	<50	<300
DUP-1-051909	5/19/2009	72 Y	<380
Applicable CUL (Freshwater Seep/Surface Water)		443	443

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB01(2.0)	9/27/2007	41Y	**390**	0.1

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB06(2.0)	10/1/2007	44 Y	55	0.191
DUP-3-100107	10/1/2007	46 Y	69	0.115

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
BR10-1SB07(2.0)	10/1/2007	24 Y	63	0.018

LF6PZ101 LF6GW104 LF6PZ102 LF6PZ105 LF6PZ103 LFGW102 LF6PZ104 LF6PZ106 LF6GW106

BR10-1SB08 BR10-1SB01 BR10-1SB04 (Note 3) FB1004W02 BR10-1SB02 BR10-1SB03 FB1005W01 BR10-1SB06 BR10-1SB05 BR10-1SB07

HALLECK ST

228 227 224 225 223 222 201 220

13 15

Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1996)
- Army Confirmation Soil Sampling Location Above Applicable Cleanup Levels (Army, 1996)
- Native Soil Sampling Location (EKI, 2007)
- Overburden Soil Sampling Location (EKI, 2007)
- Shallow Groundwater Monitoring Well
- Piezometer Location
- Grab Groundwater Location (EKI, 2009)
- FDS Pipeline (Abandoned in Place)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- FDS Pipeline (Previously Removed by Army before 1996)
- Groundwater Contour (Contour Interval : 2ft) (Note 6)
- Historical Excavation Area
- Soil Sample Above Applicable Cleanup Levels

Abbreviations:

cPAHs	= carcinogenic Polycyclic Aromatic Hydrocarbons
FDS	= Fuel Distribution System
PAHi	= Polycyclic Aromatic Hydrocarbon Immunoassay Analysis
TPHd	= Total Petroleum Hydrocarbons as Diesel
TPHfo	= Total Petroleum Hydrocarbons as Fuel Oil
TPHi	= Total Petroleum Hydrocarbons by Immunoassay Analysis
Y	= Chromatographic Pattern does not Resemble Standard

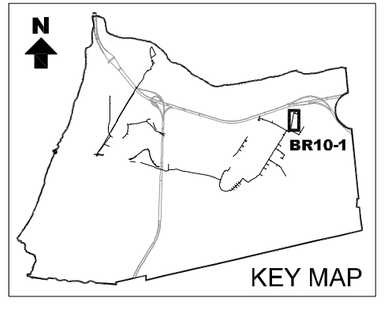
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. No sample recovery at location B10-1SB04 because of wet, sandy conditions.
4. Reported chemical concentrations above applicable soil cleanup levels are in **bold**.
5. All concentrations in milligrams per kilogram ("mg/kg"), unless otherwise noted.
6. Groundwater potentiometric surface data from Semi-Annual Groundwater Monitoring Report First and Second Quarters 2007 Presidio-Wide Quarterly Groundwater Monitoring Program, Presidio of San Francisco, prepared by Treadwell & Rollo, Inc, dated 15 October 2007.

N

0 50 100

(Approximate Scale in Feet)



Erler & Kalinowski, Inc.

Soil and Groundwater Sampling Results
at Fuel Distribution System
Section BR10-1

Presidio Trust
San Francisco, CA
October 2009
EKI A70004.16

Figure 2

DEVELOPMENT OF PRESIDIO-WIDE CLEANUP LEVELS FOR SOIL, SEDIMENT, GROUNDWATER, AND SURFACE WATER

PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Prepared for:

The Presidio Trust
34 Graham Street, P.O. Box 29052
San Francisco, California 94129-0052

Prepared by:

Erler & Kalinowski, Inc.
1870 Ogden Drive
Burlingame, California 94010

30 October 2002
Table 7-6 Revised May 2006

N

0 800 1600

(Approximate Scale in Feet)

LEGEND

- Area A/B Boundary
- Presidio Planning Area or District Boundary

Planned Human Land Use (Note 4)

- Planned Residential Use
- Planned Commercial/ Recreational Use
- Planned Institutional Use (Educational/Conference)
- Planned Commercial/ Industrial Land Use

Appropriate Soil Cleanup Level

- Residential Cleanup Level
- Recreational Cleanup Level
- Commercial/Industrial Cleanup Level

Notes:

1. All locations are approximate.
2. Basemap developed from site plan provided by the Presidio Trust.
3. Designated human land use is based on the National Park Service's Final General Management Plan Amendment ("GMPA"), dated July 1994, and Presidio Trust Management Plan ("PTMP") dated May 2002.
4. Planned human land use is recreational if none of the above patterns are shown.
5. Appropriate cleanup levels are based on the most restrictive human land use defined in the GMPA and PTMP.
6. PHSH is the Public Health Service Hospital Planning Area.

Erler & Kalinowski, Inc.

Planned Human Land Use at the Presidio

Presidio Trust
San Francisco, CA
October 2002
EKI A000003.04

Figure 7–1

Attachment A-3

MT-4

Site Closure Summary

Fuel Distribution System Area B Phase III, Presidio of San Francisco, San Francisco, California

I. AGENCY INFORMATION

Agency Name: S.F.B.R.W.Q.C.B.	Responsible Staff Person: Agnes Farres
Address: 1515 Clay Street, Suite 1400	Title: Environmental Scientist
City/State/Zip: Oakland, California 94612	Phone: 510-622-2401

II. SITE INFORMATION

Site Facility Name: FDS Area B, Presidio of San Francisco		Is the Site in a Residential Area?	Yes
RB/SMS Case No.:	38D9330	Is the Site Designated for Unrestricted Use?	Yes

Responsible Parties:
Presidio Trust
Attn.: Eileen Fanelli, Remediation Program Manager
P.O. Box 29052
San Francisco, California 94129-0052
Telephone No.: 415-561-4259

Section Number:	MT-4	Contents:	Fuel Oil
Removal Status:	Removed with documentation	Length Removed (ft):	1769
Removal Date:	3/6/1997	Length Abandoned in Place (ft):	0
		Diameter (inches):	6

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release:
Fuel Distribution System piping release

Site characterization complete?	Yes	Most Sensitive Current Use:	Residential
Monitoring wells installed?	No	Most Sensitive Potential Use:	Residential
Number:	0	Are Drinking Water Wells Affected?	No
Proper Screened Interval?	N/A	Aquifer Name:	N/A
GW Depth Below Ground Surface:	27	Is Surface Water Affected?	No
		Nearest/Affected SW Name:	SF Bay
Groundwater Basin or Area:	Marina	Is the Freshwater Zone Affected?	No

Off-Site Beneficial Use Impacts (Addresses/Locations):
None

Report on file?	Yes
Where is report(s) filed?	SF Bay Water Board, Oakland, CA
Lead Agency Name:	RWQCB

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)		Action (Treatment of Disposal w/ Destination)	Date
Pipe	1769	ft	Excavate and dispose	3/6/1997
Soil	20	cy	Excavate and treat	3/6/1997

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Maximum Documented Pollutant Concentrations Before and After Cleanup:
See Attached Tables

Background:
The predominant features at Section MT-4 are residential and office buildings, athletic fields, and the Fort Winfield Scott parade ground. The piping consisted of two parallel lines, beginning north of Storey Avenue, proceeding south beneath Storey Avenue, and across tennis courts and the Fort Winfield Scott parade ground.

The Army removed all of the piping in Section MT-4. The two parallel lines of piping were removed from two separate trenches (from north of Storey Avenue to Building 1213 and south of Building 1214 through the tennis courts and parade grounds). Between Buildings 1213 and 1214, both lines of piping were removed from one continuous trench. The trenches were each 900 ft long. The Army collected soil samples from the trench and stockpiles. The sample locations are shown on IT's figure and the data are presented in IT's Table 8-2 and 8-3.

Groundwater was not encountered during the excavation, so groundwater data are not available for this section. According to historical Trust groundwater monitoring data at nearby monitoring well 1213GW101, depth to groundwater is approximately 27 ft bgs at the site.

Excavation and Remediation:

Trench Length (feet):	1800	Was there LTTD in Backfill?:	Yes
Trench Width (feet):	2	Volume LTTD in Backfill (CY):	20
Trench Depth (feet):	4.5	Was there Overburden in Backfill?:	Yes
Excavated and Treated Volume (CY):	20		
Leakage Evidence:	Contaminated soil was encountered during excavation.		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavation and Remediation (continued):

The Army collected 14 trench confirmation soil samples per 1769 ft of piping removed from Section MT-4, satisfying the required frequency of 1 sample per 100 ft of trench for both trenches. The samples were collected along two 900-ft trenches that were parallel and immediately adjacent to one another. Six 4-point composite samples were collected from the stockpiled excavated soil. The Army completed remedial excavation in three areas of petroleum hydrocarbon-affected soil: an excavation between Stations 23+00 and 24+00, adjacent to the north end of Storey Avenue and the western trench; an excavation adjacent to the northern end of Storey Avenue and the eastern trench; and an excavation in the center of Storey Avenue adjacent to the western trench. The total volume of remedial excavations was 20 cy. The Army collected seven soil samples from the floor and sidewalls of the remedial excavations, satisfying the required frequency of 2 samples per 15 linear ft of excavation. The Army backfilled the trench with overburden soil to 18 inches bgs and topsoil to ground surface. Remedial excavation pits were backfilled with LTTD-treated soil to 2 ft bgs and imported topsoil to ground surface.

Overburden soil used as backfill in the remedial excavation trench met the discharge criteria for petroleum hydrocarbons and PAHs, except concentrations of TPH in two stockpile soil samples (FM04024S01 and FM04024S02) collected near Station 24+00 may have potentially exceeded the discharge criterion. Immunoassay tests indicated that sample FM04024S01 contained greater than 62.5 mg/kg of TPH, and sample FM04024S02 had an elevated reporting limit of 300 mg/kg, which is above the discharge criterion. No visual or olfactory evidence of petroleum hydrocarbon contamination was observed in these samples. It is uncertain whether the TPH concentrations in these two samples actually exceeded the discharge criterion. Concentrations of petroleum hydrocarbons and PAHs representative of soils remaining in place at the remedial excavations were below applicable cleanup levels.

The Trust review of Army results indicated that stockpile soil at Station 24+00 used as backfill potentially exceeded cleanup levels for TPH (> 62.5 mg/kg). IT recommended that confirmation sampling of overburden soil reused as trench backfill near Station 24+00 be conducted. Additionally, the Army conducted inadequate soil sampling of the trench and stockpiled soil. In September 2007, the Trust collected six additional overburden soil samples along Section MT-4 at six locations (locations MT-4SB01 through MT4-SB06) and samples were analyzed for TPH (Table 4). One overburden soil sample (location MT-4SB03) contained concentrations of TPH that exceeded the residential cleanup levels. TPH concentrations were less than residential cleanup levels in the other five samples.

On 9 June 2009, the Trust's contractor ERRG excavated soil impacted with TPHd and TPHfo from the vicinity of location MT-4SB03 (Figure 3). The excavation was approximately 4 feet deep, 6 feet wide, and 12 feet long. ERRG collected confirmation soil samples from the floor and sidewalls of the excavation. Concentrations of TPH and PAHs in all of the confirmation soil samples were either not detected or were below applicable cleanup levels (Tables 3 and 4 of the Phase III Field Sampling and Closure Report). Sand stored at Graded Area 9 was used to backfill the excavation; this sand meets the applicable Presidio-wide cleanup levels.

Reasons for any Abandoned Piping:

No Piping Abandoned

Conclusion:

In June 2009, overburden soil that exceeded cleanup levels for TPH was removed. Concentrations of TPH and PAHs in all of the confirmation samples were either not detected or were below applicable cleanup levels throughout Section MT-4.

No further work is recommended for this section.

Additional Comments:

None

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?	Yes
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?	Yes
Does corrective action protect public health for current land use?	Yes
Site Management Requirements: No further action recommended.	
Monitoring Wells Decommissioned: N/A Number Decommissioned: N/A Number Retained: N/A	
List Enforcement Actions Taken: Regional Water Quality Control Board, Order No. R2-2003-0080.	
List Enforcement Actions Rescinded: None	

V. DOCUMENTS ASSOCIATED WITH SITE

EKI, February 2009. Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report, Presidio of San Francisco, California.

EKI, October 2009. Former Fuel Distribution System ("FDS") Area B, Phase III, Field Sampling and Closure Report.

International Technology Corporation, May 1999. Fuel Distribution System Closure Report, Presidio of San Francisco, California,

Regional Water Quality Control Board, Order No. R2-2003-0080.

Treadwell & Rollo, October 2010. Semi-Annual Groundwater Monitoring Report, First and Second Quarters 2010, Presidio-Wide Quarterly Groundwater Monitoring Program, Presidio of San Francisco, California.

FUEL DISTRIBUTION SYSTEM REMOVAL REPORT
PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Contract No. DACW05-95-D-0001
Task Order No. 0005
Work Authorization Directive No. 36

Submitted to:

Department of the Army
U.S. Army Corps of Engineers
Sacramento District
1325 "J" Street
Sacramento, California 95814-2922

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

FINAL

May 1999

Issued to:_____Date:_____

8.0 Section MT-4 (Station 23+00 to 31+00)

8.1 Introduction

Section MT-4 is located in the western part of the Presidio. A section map and photographs of work at Section MT-4 are provided as Figures 8-1 and 8-2, respectively.

The predominant features of Section MT-4 are the Fort Winfield Scott parade ground, athletic fields, residential and office buildings, landscaped lawns, and moderately sloping terrain.

The FDS piping within Section MT-4 was oriented to the north. The piping consisted of two parallel lines, beginning north of Storey Avenue and proceeding south beneath Storey Avenue and across tennis courts and the Fort Winfield Scott parade ground.

Removal and abandonment of FDS piping between Buildings 1213 and 1214 and Ralston Avenue, as shown on Figure 8-1, is discussed in Chapter 26 (Section BR2-3).

Soil Description: Soils in the vicinity of Section MT-4 consist of fill and undivided surficial deposits, primarily sand (MW, 1995a).

Groundwater Information: Groundwater in the vicinity of Section MT-4 is encountered at a depth of greater than 30 ft bgs (MW, 1995d). Section MT-4 is located within the Marina Groundwater Basin (MW, 1995d).

8.2 Site Cleanup Requirements

Based on land use at Section MT-4, SALs for petroleum hydrocarbons and PAHs related to residential and terrestrial ecology criteria are shown in Table 8-1.

8.3 FDS Excavation

A total of approximately 1,769 ft of 6-inch diameter piping was removed in Section MT-4. Details on the pipeline, trench and remedial excavations are discussed below.

8.3.1 Pipeline Removal

Details on pipeline removal in Section MT-4 are as follows:

Removal: All piping in Section MT-4 was removed.

8.3.2 Trench Excavation

Details on the trench excavation and backfill are as follows:

Trench dimensions: The two parallel lines of piping were excavated from two separate trenches from north of Storey Avenue to Building 1213, and south of Building 1214 through the tennis courts and parade grounds. Between Buildings 1213 and 1214 (approximately 100 ft), both lines of piping were removed from one continuous trench. The trenches were each 900 ft long. The average dimensions of both trenches were 2 ft wide by 4.5 ft deep. Where the piping was excavated from one trench, the average width was also 2 ft. Variations in average depth were due to changes in topography over the main trench length.

Backfill Information: With the exception of the areas of excavation in Storey Avenue, the trench was backfilled using overburden materials from the excavation to 18 inches bgs and imported topsoil to the ground surface.

8.3.3 Remedial Excavations

Details on remedial excavations in Section MT-4 are as follows:

Station Range: Excavation of three areas of petroleum hydrocarbon-affected soil was conducted between Stations 23+00 and 24+00 beneath Storey Avenue (Figure 8-3).

Final Excavation Dimensions: The excavation adjacent to the north end of Storey Avenue and the western trench was about 9 ft long by 4.5 ft wide by 3 ft deep. The excavation adjacent to the north end of Storey Avenue and the eastern trench was about 21 ft long by 5 ft wide by 5 ft deep. The excavation in the center of Storey Avenue adjacent to the western trench was 15 ft long by 10 ft wide by 6 ft deep.

Description of Excavation: Approximately 20 yd^3 of soil were removed during the excavations. Following completion of the excavations, soil samples were collected from the excavation sidewalls and/or bottoms. Soil analytical results are discussed in Section 8.4. The excavation areas were backfilled with treated soils from the LTTD unit to 2 ft bgs and imported top soil to the ground surface.

8.4 Soil Analytical Results

A list of soil samples representing soil that remained in place after piping removal and remedial excavations, and corresponding sample depths and analytical results are provided in Table 8-2.

8.4.1 Immunoassay Analytical Results

Results of immunoassay analysis of soil samples for petroleum hydrocarbons and PAHs are provided in Table 8-2. The analytical results indicate that concentrations of petroleum hydrocarbons and PAHs in soils remaining in the trench and excavations are below SALs.

8.4.2 Laboratory Analytical Results

No samples representing soil remaining in place in Section MT-4 were submitted to an off-site laboratory for analysis. Ten percent of the total number of samples collected from all FDS sections were submitted to an off-site laboratory for analysis.

8.4.3 Stockpile Analytical Results

Approximately 567 yd^3 of soil were excavated from the trench in Section MT-4. Analytical results of 4-point composite soil samples collected from stockpiled soil located at Stations 24+00, 25+00 and 31+00 are provided in Table 8-3. Discharge criteria for reuse of stockpiled soil are discussed in Section 3.4.3.

Analysis of stockpiled soil samples indicated that petroleum hydrocarbons and PAH concentrations in stockpile samples were below the discharge criteria with the possible exception of two samples collected at Station 24+00 (FM04024S01 and FM04024S02). Concentrations of petroleum hydrocarbons were detected in FM04024S01 at a detection limit below the discharge level; and were not detected in FM4024S02, but this result was at an elevated detection limit above the discharge level. No visual or olfactory evidence of petroleum hydrocarbon contamination was observed in these samples. It is therefore not certain whether the discharge criteria were actually exceeded in these two samples. All of the stockpiled soil was used as backfill in the trench.

8.5 Conclusions/Recommendations

The following is a summary of the closure criteria specifications for Section MT-4 of the FDS:

- Fourteen trench soil samples were collected per 1,769 ft of piping removed. Samples were collected along two 900-ft trenches that were parallel and immediately adjacent to one another. Therefore, the required frequency of 1 sample per 100 ft of trench was met.
- No piping was abandoned in Section MT-4; therefore, no pressure tests were conducted. .
- Six 4-point composite soil samples were collected from 567 yd^3 of stockpiled excavated soil. Overburden soil used as backfill in the excavation trench met the discharge criteria for petroleum hydrocarbons and PAHs with the exception of soil near Station 24+00. Concentrations of petroleum hydrocarbons at this location potentially exceeded discharge criteria.
- Seven soil samples were collected along 45 linear ft of the remedial excavations in Storey Avenue, satisfying the required frequency of 2 samples per 15 linear ft of excavation.

- Concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) and PAHs for soil remaining in place are below the SALs.

It is recommended that confirmation sampling of overburden soil reused as trench backfill near Station 24+00 be conducted. Based on the source of stockpile samples that may have exceeded discharge criteria, confirmation samples should be collected between FM04023T02 and FM04023T08 (northern segment) and between FM04023T03 and FM040T23T09 (southern segment). No other action is recommended for Section MT-4.

Table 8-1
Soil Action Levels, Section MT-4
Fuel Distribution System Removal Report

Presidio of San Francisco

Target Compound	Soil Action Level (mg/kg[a])	Criteria
Depth Range: 0-3 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	700	Ecological (terrestrial)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	980	Ecological (terrestrial)
Total Carcinogenic PAHs[b]	5.6	Human health (residential)
Depth Range: 3-10 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	1,380	Human health (residential)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	1,900	Human health (residential)
Total Carcinogenic PAHs	5.6	Human health (residential)

[a]mg/kg - milligrams per kilogram
[b]PAHs - Polycyclic Aromatic Hydrocarbons

checked by: Tom Bey 4/12/99
approved by: [signature] 5-20-99

Table 8-2
Excavation Soil Analytical Results, Section MT-4
Fuel Distribution System Removal Report

Presidio of San Francisco

Sample Designation	Depth[a] (feet)	Collection Date	Total Petroleum Hydrocarbons by Immunoassay (mg/kg[b])	Total Polycyclic Aromatic Hydrocarbons by Immunoassay (mg/kg)
FM04023T02	3.0	3/3/97	<575	<5.0
FM04023T03	5.0	3/4/97	<138	<5.0
FM04023T05	3.0	3/4/97	<115	<5.0
FM04023T06	6.0	3/4/97	<138	<5.0
FM04023T07	3.5	3/4/97	<138	<5.0
FM04023T08	4.5	3/4/97	<575	<5.0
FM04023T09	4.5	3/4/97	115	<5.0
FM04025T01	1.0	3/5/97	<115	<5.0
FM04025T03	4.0	3/6/97	<115	<5.0
FM04026T01	3.5	3/6/97	<115	<5.0
FM04027T01	2.5	11/27/96	<115	<5.0
FM04028T01	5.0	11/26/96	<115	<5.0
FM04029T01	4.0	11/18/96	<115	<5.0
FM04030T01	4.0	11/18/96	<115	<5.0

[a]Depth - Sample depth in feet below original ground surface
[b]mg/kg - milligrams per kilogram

checked by: C.P. 5/24/97

approved by: [signature] 5-21-97

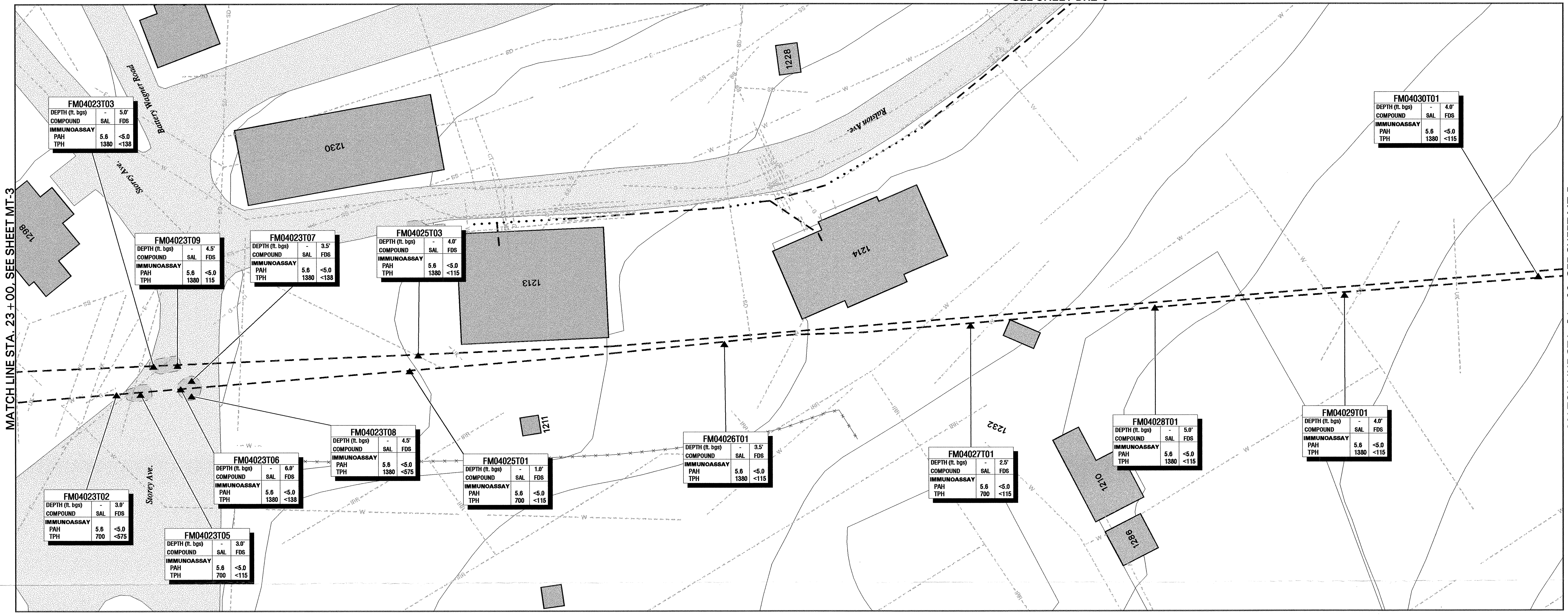
Table 8-3
Stockpile Soil Analytical Results, Section MT-4
Fuel Distribution System Removal Report

Presidio of San Francisco

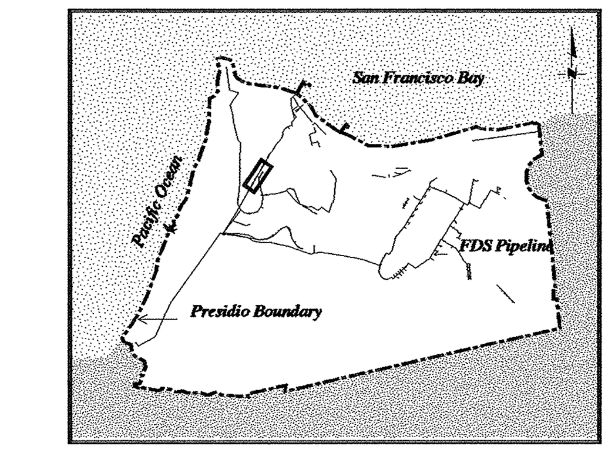
Sample Designation	Collection Date	Total Petroleum Hydrocarbons by Immunoassay (mg/kg[a])	Total PAHs[b] by Immunoassay (mg/kg)	Petroleum Hydrocarbons by EPA 8015 Modified[c] (mg/kg)	
				(C10-C24) Diesel Range	(C24-C36) Fuel Oil Range
FM04024S01	03/05/97	>62.5	<1	NA[d]	NA
FM04024S02	03/05/97	NA	NA	35	<300
FM04025S01	03/06/97	<62.5	<1	NA	NA
FM04031S01	11/25/96	<62.5	<1	3.4	<60
FM04031S02	11/25/96	<100	<5.0	NA	NA
FM04031S03	11/25/96	<100	<5.0	NA	NA

[a]mg/kg - milligrams per kilogram
[b]PAHs - Polycyclic Aromatic Hydrocarbons
[c]U.S. Environmental Protection Agency, 1996, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Washington, DC.
[d]NA - not analyzed

checked by: Tom Bonny 4/14/99
approved by: [signature] 5.20.99



PLAN VIEW



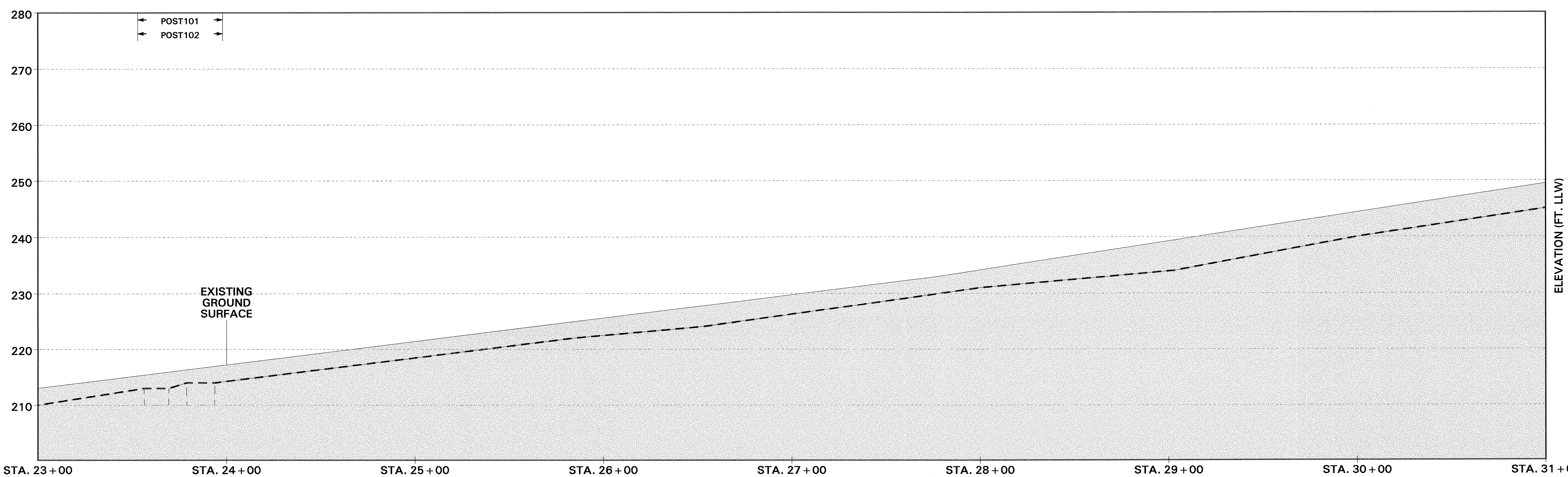
Legend:

E	Electric Line
G	Gas Line
IRR	Irrigation Line
SD	Storm Drain Line
SS	Sanitary Sewer Line
T	Telephone Line
W	Water Line
CT	Cable TV Line
FO	Fiber Optic Line
SL	Street Light Line
U	Unknown Line
XA	Abandoned Utility Line Letter Designates Utility Type A Designates Abandoned
	Pavement
	Building and Identification No.
	Excavation
	Limit of Excavation
	Removed FDS Pipeline
	Abandoned In Place FDS Pipeline
	Previously Removed FDS Pipeline
	Topographic Contour (Contour Interval: 5ft.)
	Fence
	Removed Structure (except tanks)
▲	Soil Sample
FB0112T02	Soil Sample Identification No.
POST018	LTTD Soil Sample Identification No.
NA	Not Analyzed
NAP	Not Applicable
SAL	Soil Action Level Established in SCRs (RWQCB, 1996)
RS	Immunoassay Result Superseded by Laboratory PAH Analysis

Notes:

1. Vertical Datum: Presidio Lower Low Water (LLW)
2. All concentrations in mg/kg unless noted otherwise
3. The area around removed pipeline was excavated to a width of 2.5-5 ft.
4. All soil samples collected from the final limit of excavation
5. If no LTTD sample identification no., trench backfilled with clean fill
6. Excavations backfilled with thermally treated soils (See table below for analytical results)

0 15 30 feet



HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 10'

PROFILE

LTTD Soil Sample Analytical Results

Analyte (unit of measure)	POST101	POST102
Total Petroleum Hydrocarbons (mg/kg)	59	34
BETX (mg/kg)		
Benzene	<0.006	<0.006
Ethylbenzne	<0.006	<0.006
Toluene	<0.006	<0.006
Xylenes (total)	<0.006	<0.006
Total Carcinogenic PAHs (mg/kg)	0.64	1.35
Immunoassay-PAHs (mg/kg)	RS	RS
SPLP (µg/l)		
Diesel Range	NA	NA
Gasoline Range	NA	NA
Benzene	NA	NA
Ethylbenzene	NA	NA
Toluene	NA	NA
Xylenes (m&p-)	NA	NA
Xylenes (o-)	NA	NA

REVISION	DATE	DESCRIPTION	BY	BY
1	04-02-99	FDS PIPELINE REMOVAL, SUBMITTAL TO USACE		

MONTGOMERY WATSON

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: E. MAKHLOUF
DRAWN: I. KENNEDY
CHECKED:

PRESIDIO OF SAN FRANCISCO *CALIFORNIA*

REMOVAL / ABANDONMENT OF FUEL DISTRIBUTION SYSTEM PIPELINE AS-BUILT STATION 23+00 TO 31+00

SUBMITTED:
DATE APPROVED:
SCALE:
SPEC. No.
SHEET MT-4
FILE No.

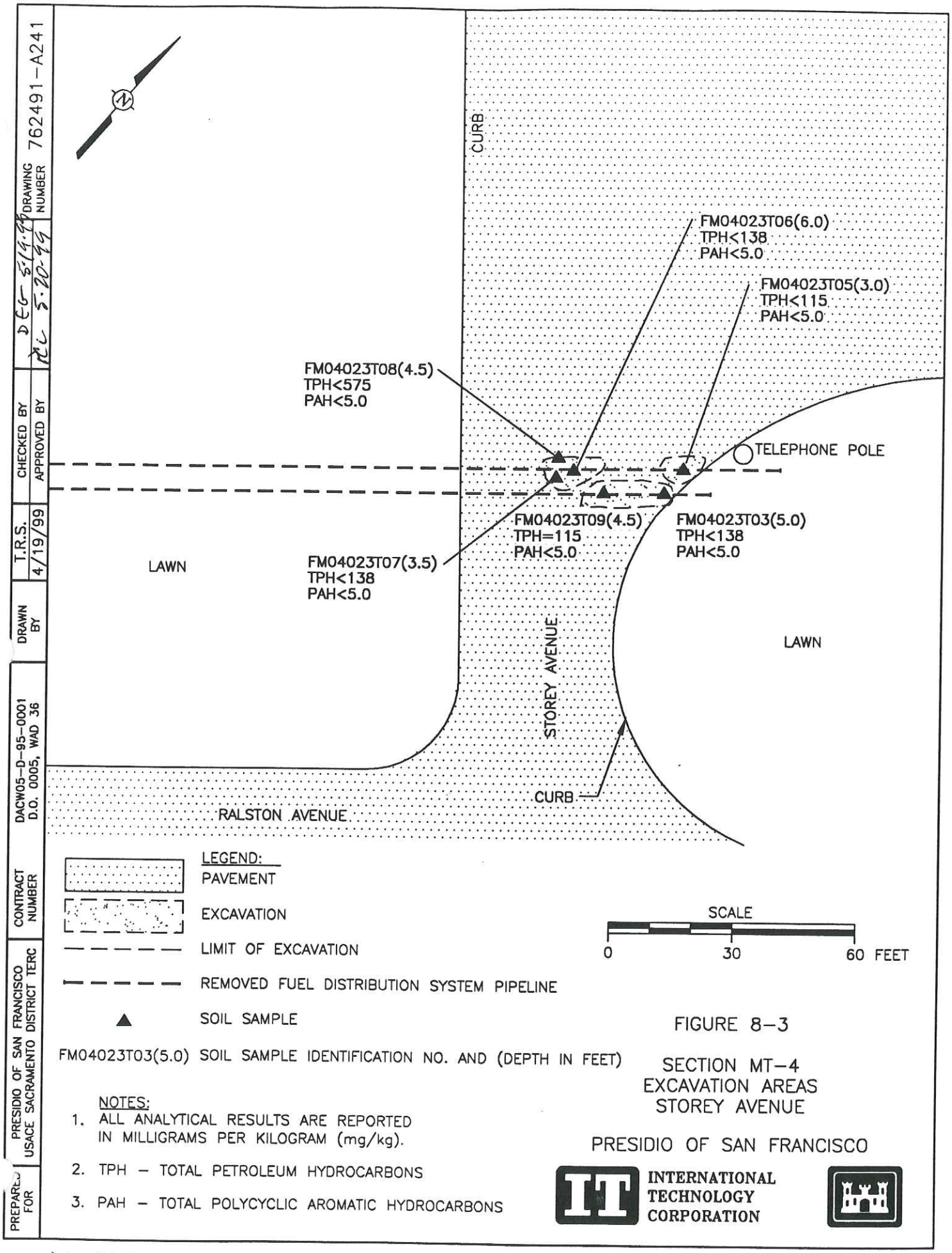
Figure 8-2 - Photographs, Section MT-4

Date: March 4, 1997

Removing pavement for excavation of petroleum-affected soil at Storey Avenue. Building 1230 is to the southeast, at the top center.

Date: March 5, 1997

Clearing and grubbing of FDS pipeline. Two lines ran parallel in this area, from Building 1299 to the northeast (left-center) to the Fort Scott parade ground, behind the photographer's position.



c:\dwgs\fds\smt4easa

Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report

Presidio of San Francisco
California

February 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total
FDS Section MT-3														
MT-3SB01	MT-3SB01(2.5)	9/28/2007	2.5	HH-Res	HH-Res	overburden	660 Y	1,100	0.017 J	0.013 J	0.16	0.017 J	0.036	0.243
MT-3SB02	MT-3SB02(2.5)	9/28/2007	2.5	HH-Res	HH-Res	overburden	5 Y	31	0.0052 J	0.0046 J	0.0063 J	0.0021 J	0.0069 J	0.0251
MT-3SB03	MT-3SB03(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	9	0.013	0.013	0.023	0.0072	0.013	0.0692
MT-3SB04	MT-3SB04(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	6.7	0.0056	0.0059	0.0093	0.0031 J	0.0071	0.031
	DUP-1-092807	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	9.5	0.011	0.011	0.02	0.0057	0.012	0.0597
MT-3SB05	MT-3SB05(4.0)	9/28/2007	4	HH-Res	HH-Res	native	--	--	0.0054 J	0.0052 J	0.0072	0.0025 J	0.0062	0.0265
MT-3SB06	MT-3SB06(12.5)	9/25/2007	12.5	>5 GW	na	native	<1.2	<5.8	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
MT-3SB07	MT-3SB07(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	120 Y	280	**0.45**	**0.56**	**0.72**	0.28	0.53	2.54
MT-3SB08	MT-3SB08(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	1,200 Y	**2,400**	**0.58**	**0.72**	**1.1**	0.33	0.69	3.42
MT-3SB09	MT-3SB09(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	2 Y	18	0.042	0.047	0.068	0.02	0.054	0.231
FDS Section MT-4														
MT-4SB01	MT-4SB01(2.0)	9/25/2007	2	HH-Res	HH-Res	overburden	19 Y	70	--	--	--	--	--	--
MT-4SB02	MT-4SB02(2)	9/24/2007	2	HH-Res	HH-Res	overburden	41 Y	200	--	--	--	--	--	--
MT-4SB03	MT-4SB03(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	**12,000 Y**	**12,000**	--	--	--	--	--	--
MT-4SB04	MT-4SB04(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	13 Y	92	--	--	--	--	--	--
MT-4SB05	MT-4SB05(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	1.6 Y	13	--	--	--	--	--	--
MT-4SB06	MT-4SB06(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	<1.1	14 Y	--	--	--	--	--	--
FDS Section MT-5														
MT-5SB01	MT-5SB01(4.5)	9/24/2007	4.5	HH-Res	HH-Res	native	--	--	<0.0051	0.0037 J	0.0012 J	<0.0051	0.00073 J	0.00563
MT-5SB02	MT-5SB02(9.5)	9/25/2007	9.5	HH-Res	HH-Res	native	4.1	<5.1	<0.005	0.0033 J	<0.005	0.0024 J	<0.005	0.0057
FDS Section MT-9														
MT-9SB01	MT-9SB01(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	<1	6.6 Y	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
MT-9SB02	MT-9SB02(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	**830 Y**	**1,600**	<0.27	**0.082 J**	0.046 J	<0.27	<0.27	0.128
MT-9SB03	MT-9SB03(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	3.5 Y	6.8 Y	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
	DUP-1-100107	10/1/2007	2	Eco-T	HH-Res	overburden	1.9 Y	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
FDS Section MT-10														
MT-10SB01	MT-10SB01(0.5)	10/5/2007	0.5	Eco-T	HH-Rec	native	70 Y	130	<0.005	<0.005	0.0025 J	<0.005	0.00086 J	0.00336
>5 GW							**15,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value. Plus sign indicates numerical value has high bias.
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater
<5 CF (Table 5) Soil Cleanup Levels for Crissy Field, < 5 feet above the hightest groundwater
<5 MCL (Table 4) Soil Cleanup Levels for the Protection of Water Quality at Drinking Water Standards, < 5 feet above the highest groundwater
Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream
Eco-SW (Table 6) Point-of-Compliance Concentrations for Soil and Water for Petroleum Hydrocarbons, BTEX, and MTBE for the Saltwater Protection Zone
Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Former Fuel Distribution System ("FDS") Area B Phase III Field Sampling and Closure Report

Presidio of San Francisco
California

October 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 3
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total (Note 1)
FDS Section MT-4														
MT-4SB07	DUP1-060909	6/9/2009	2	HH-Res	HH-Res	Overburden	<1.2	<5.9	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	MT-4SB07(2.0)	6/9/2009	2	HH-Res	HH-Res	Overburden	53 Y	390	0.007 J	<0.011	0.026	<0.011	0.024	<0.079
MT-4SB08	MT-4SB08(2.0)	6/9/2009	2	HH-Res	HH-Res	Overburden	<1.2	<6	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
MT-4SB09	MT-4SB09(2.0)	6/9/2009	2	HH-Res	HH-Res	Overburden	<1.2	8.1	0.0029 J	0.0035 J	0.0062	0.0019 J	0.0042 J	0.0187
MT-4SB10	MT-4SB10(2.0)	6/9/2009	2	HH-Res	HH-Res	Overburden	<1.2	<5.9	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
MT-4SB11	MT-4SB11(4.0)	6/9/2009	4	HH-Res	HH-Res		310	320	0.0053 J	<0.006	<0.006	<0.006	0.019	<0.0423
>5 GW							**10,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

Abbreviations:
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value
Y - chromatographic pattern does not resemble standard

Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater
Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream
Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Note:
1. Total carcinogenic PAHs were summed manually from individual carcinogenic PAHs. To be conservative, the detection limit or estimated value for each compound was summed to calculate the total concentration.

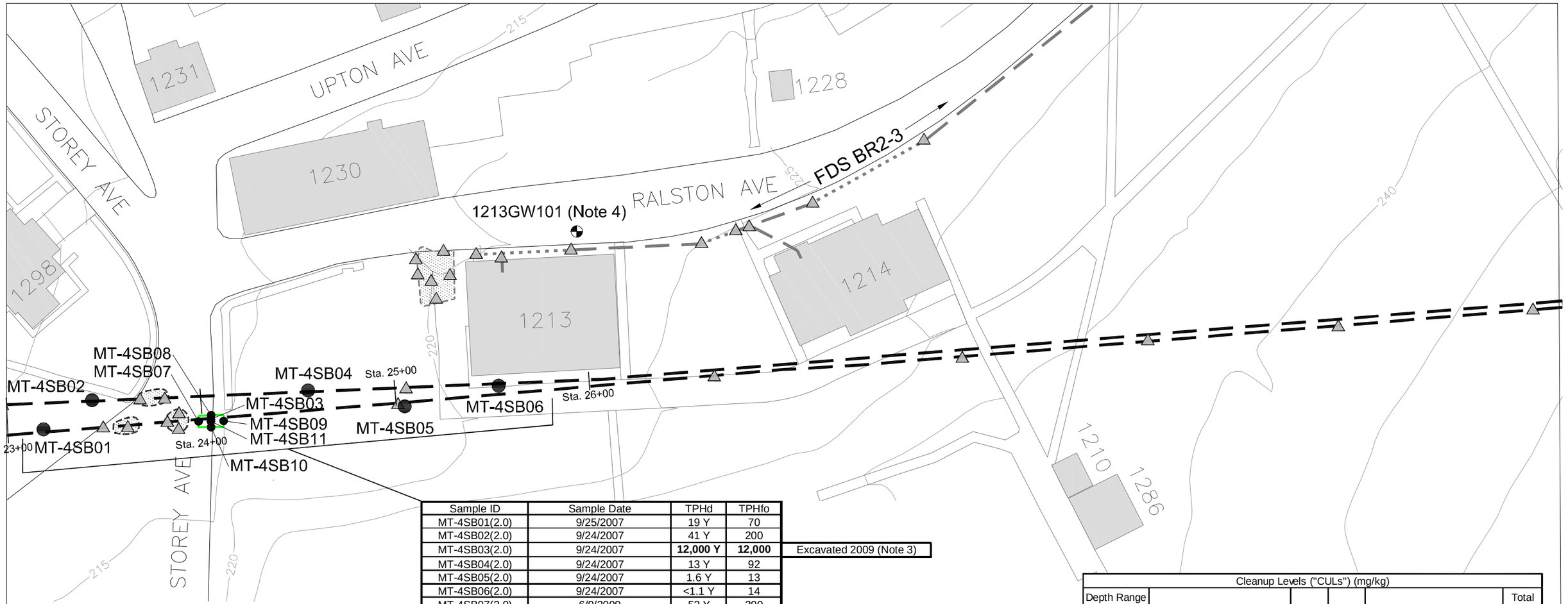
TABLE 4
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section MT-4																						
MT-4SB07	DUP1-060909	6/9/2009	2	HH-Res	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0295
	MT-4SB07(2.0)	6/9/2009	2	HH-Res	<0.011	<0.011	0.0031 J	0.007 J	<0.011	0.026	0.013	<0.011	0.024	<0.011	0.018	0.01 J	0.0059 J	0.014	0.012	0.024	0.025	<0.079
MT-4SB08	MT-4SB08(2.0)	6/9/2009	2	HH-Res	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0017 J	<0.006	0.0025 J	<0.006	<0.006	<0.006	<0.03
MT-4SB09	MT-4SB09(2.0)	6/9/2009	2	HH-Res	<0.0062	<0.0062	<0.0062	0.0029 J	0.0035 J	0.0062	0.0023 J	0.0019 J	0.0042 J	<0.0062	0.0037 J	<0.0062	0.0017 J	<0.0062	<0.0062	0.002 J	0.0043 J	0.0187
MT-4SB10	MT-4SB10(2.0)	6/9/2009	2	HH-Res	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.03
MT-4SB11	MT-4SB11(4.0)	6/9/2009	4	HH-Res	0.015	0.0071	<0.006	0.0053 J	<0.006	<0.006	<0.006	<0.006	0.019	<0.006	0.0078	0.052	<0.006	<0.006	0.0097	<0.006	0.015	<0.0423
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value

Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Note:
1. Total carcinogenic PAHs were summed manually from individual carcinogenic PAHs. To be conservative, the detection limit or estimated value for each compound was summed to calculate the total concentration.



Sample ID	Sample Date	TPHd	TPHfo	
MT-4SB01(2.0)	9/25/2007	19 Y	70	
MT-4SB02(2.0)	9/24/2007	41 Y	200	
MT-4SB03(2.0)	9/24/2007	**12,000 Y**	**12,000**	Excavated 2009 (Note 3)
MT-4SB04(2.0)	9/24/2007	13 Y	92	
MT-4SB05(2.0)	9/24/2007	1.6 Y	13	
MT-4SB06(2.0)	9/24/2007	<1.1 Y	14	
MT-4SB07(2.0)	6/9/2009	53 Y	390	
MT-4SB07 DUP(2.0)	6/9/2009	<1.2	<5.9	
MT-4SB08(2.0)	6/9/2009	<1.2	<6	
MT-4SB09(2.0)	6/9/2009	<1.2	8.1	
MT-4SB10(2.0)	6/9/2009	<1.2	<5.9	
MT-4SB11(4.0)	6/9/2009	310	320	

Cleanup Levels ("CULs") (mg/kg)					
Depth Range (ft bgs)	Basis for TPHd/fo CULs	TPHd	TPHfo	Basis for cPAH CULs	Total cPAHs
<3	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
3-10	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
>10	> 5 ft to Groundwater	15,000	15,000	--	--

Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1996-1997)
- Overburden Soil Sampling Location (EKI, 2007)
- Groundwater Monitoring Well
- FDS Pipeline (Abandoned in Place)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- Historical Excavation Area
- Excavation Area (Note 3)

Abbreviations:

cPAHs	= carcinogenic Polycyclic Aromatic Hydrocarbons
ft bgs	= Feet Below Ground Surface
FDS	= Fuel Distribution System
TPHd	= Total Petroleum Hydrocarbons as Diesel
TPHfo	= Total Petroleum Hydrocarbons as Fuel Oil
Y	= Chromatographic Pattern does not Resemble Standard

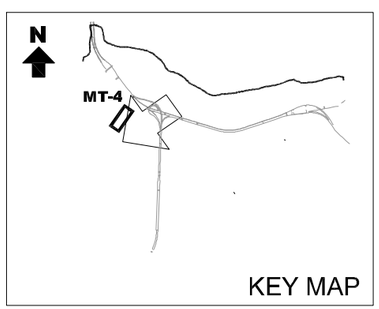
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. Excavation in June 2009 removed sample location MT-4SB03. Samples MT-4SB07 through MT-4SB11 serve as excavation confirmation samples.
4. The historical groundwater elevation at well 1213GW101 is between 18 and 30 ft bgs. Monitoring well location source: Semi-Annual Groundwater Monitoring Report, First and Second Quarters 2007, Presidio-Wide Quarterly Groundwater Monitoring Program, Presidio of San Francisco, Ca, prepared by Treadwell & Rollo, Inc., October 2007.
5. Reported chemical concentrations above applicable soil cleanup levels are in **bold**.
6. All concentrations in milligrams per kilogram ("mg/kg").

0 50 100

(Approximate Scale in Feet)

N



KEY MAP

Erler & Kalinowski, Inc.

Soil Sampling Results at
Fuel Distribution System
Section MT-4
Presidio Trust
San Francisco, CA
October 2009
EKI A70004.16
Figure 3

THE PRESIDIO TRUST

20091001.14305532 G:\A70004.16\Oct09\Figure 03.dwg MT-4

Attachment A-4

MT-9

Site Closure Summary

Fuel Distribution System Area B Phase III, Presidio of San Francisco, San Francisco, California

I. AGENCY INFORMATION

Agency Name: S.F.B.R.W.Q.C.B.	Responsible Staff Person: Agnes Farres
Address: 1515 Clay Street, Suite 1400	Title: Environmental Scientist
City/State/Zip: Oakland, California 94612	Phone: 510-622-2401

II. SITE INFORMATION

Site Facility Name: FDS Area B, Presidio of San Francisco		Is the Site in a Residential Area?	Yes
		Is the Site Designated for Unrestricted Use?	Yes
RB/SMS Case No.:	38D9330		

Responsible Parties:

Presidio Trust
Attn.: Eileen Fanelli, Remediation Program Manager
P.O. Box 29052
San Francisco, California 94129-0052
Telephone No.: 415-561-4259

Section Number:	MT-9	Contents:	Fuel Oil
Removal Status:	Removed with documentation	Length Removed (ft):	740
Removal Date:	6/17/1997	Length Abandoned in Place (ft):	60
		Diameter (inches):	6

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release:
Fuel Distribution System piping release

Site characterization complete?	Yes	Most Sensitive Current Use:	Residential
Monitoring wells installed?	No	Most Sensitive Potential Use:	Residential
Number:	0	Are Drinking Water Wells Affected?	No
Proper Screened Interval?	N/A	Aquifer Name:	N/A
GW Depth Below Ground Surface:	30	Is Surface Water Affected?	No
		Nearest/Affected SW Name:	SF Bay
Groundwater Basin or Area:	Marina/West Valley	Is the Freshwater Zone Affected?	No

Off-Site Beneficial Use Impacts (Addresses/Locations):
None

Report on file?	Yes
Where is report(s) filed?	SF Bay Water Board, Oakland, CA
Lead Agency Name:	RWQCB

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)		Action (Treatment of Disposal w/ Destination)	Date
Pipe	740	ft	Excavate and dispose	6/17/1997
Soil	555	cy	Excavate and treat	6/17/1997

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Maximum Documented Pollutant Concentrations Before and After Cleanup:
See attached tables and figures from the IT and EKI reports.

Background:

The predominant features of this site are paved roadways, hills forested with eucalyptus, Monterey pine, and cypress trees, and assorted vine plant covering. The piping extended from near Wright Loop to approximately 60 ft east of the California Highway 1 overpass.

The Army removed approximately 740 ft of piping. The average depth of the trench was 1.5 ft deep, with a maximum depth of 4 ft bgs. The Army collected soil samples from the trench and identified 2 locations for additional excavation. These overexcavations were also sampled. The sample locations are shown on IT's figure and the data are presented in IT's Table 13-2.

Groundwater was not encountered during the excavation and no groundwater data representative of potential groundwater impacts are available.

Excavation and Remediation:

Trench Length (feet):	740	Was there LTTD in Backfill?:	Yes
Trench Width (feet):	2	Volume LTTD in Backfill (CY):	555
Trench Depth (feet):	1.5	Was there Overburden in Backfill?:	Yes
Excavated and Treated Volume (CY):	555		
Leakage Evidence:	Contaminated soil was encountered.		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavation and Remediation (continued):

The Army collected eight trench samples per 740 ft of piping removed at Section MT-9, satisfying the required frequency of one sample per 100 ft of trench and included samples collected at each change in direction. Overexcavation No. 8 was located between Station 61+90 and 62+35. It consisted of two excavation pits separated by a tree stump. An additional excavation was conducted southwest of Building 1305 between Stations 63+40 and 63+45. No samples of the stockpiled excavated soil were collected. Twelve soil samples were collected from the floors and sidewalls along 57 linear ft of remedial excavations, satisfying the frequency requirements of two samples per 15 linear ft.

Soil samples were also collected from both ends of the abandoned piping. No pressure testing data is available for abandoned laterals. Except for the areas of remedial overexcavation, the trench was backfilled with overburden soil to 2 ft bgs and topsoil to ground surface. Overexcavation No. 10 and the overexcavation southwest of Building 1305 were backfilled with LTTD-treated soil to 2 ft bgs and imported topsoil to the ground surface.

Concentrations of petroleum hydrocarbons (TPHd and TPHg), total PAHs, and individual cPAHs were below cleanup levels in Army confirmation samples.

The Trust review of Army results indicated that no stockpile samples were collected or analyzed for the 100 cy of trench spoils that were backfilled into the trench. In September 2007, the Trust collected additional soil samples from three locations along MT-9 (MT-9SB01 through MT-9SB03) (see Figure 4). Samples were analyzed for TPH and PAHs (Tables 4 and 6). One sample collected at location MT-9SB02 had TPH concentrations in overburden soil above the ecological terrestrial cleanup levels; benzo(a)pyrene was also detected in this sample at a concentration of 0.082 mg/kg, which is above the residential cleanup level of 0.04 mg/kg.

To assess the presence of TPH near sample location MT-9SB02, EKI collected four additional soil samples on 8 June 2009 near the Army's previous excavation and the Trust's previous sample location. TPHd, TPHfo, and PAH concentrations in the samples collected around location MT9-SB02 on 8 June 2009 were all below applicable cleanup levels.

Reasons for any Abandoned Piping:

This section was under the Highway 1 overpass at the east end of Hitchcock Avenue.

Conclusion:

Concentrations of petroleum hydrocarbons and total cPAHs were generally below cleanup levels. One sample located adjacent to an Overexcavation (location MT-9SB02) contained TPHd, TPHfo, and benzo(a)pyrene above the applicable cleanup levels. However, sample location MT-9SB02 is surrounded by samples below the TPHd, TPHfo, and benzo(a)pyrene cleanup levels indicating that it is an isolated exceedance and limited in extent. In addition, the location is in an ecologic restoration area, and the detected benzo(a)pyrene concentration is below the individual ecological terrestrial cleanup level of 0.3 mg/kg. Lastly, the total cPAH results meet the applicable cleanup level in the Order.

It is highly unlikely that there are groundwater impacts at FDS Section MT-9 since no stained soil was encountered during excavation activities, the depth to water is generally at 20 to 40 ft bgs, and the maximum depth of excavations was 11 ft bgs.

Taken together, no further action is recommended for Section MT-9.

Additional Comments:

None

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?	Yes
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?	Yes
Does corrective action protect public health for current land use?	Yes
Site Management Requirements: No further action recommended.	
Monitoring Wells Decommissioned: N/A Number Decommissioned: N/A Number Retained: N/A	
List Enforcement Actions Taken: Regional Water Quality Control Board, Order No. R2-2003-0080.	
List Enforcement Actions Rescinded: None	

V. DOCUMENTS ASSOCIATED WITH SITE

EKI, February 2009. Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report, Presidio of San Francisco, California.

EKI, October 2009. Former Fuel Distribution System ("FDS") Area B, Phase III, Field Sampling and Closure Report.

International Technology Corporation, May 1999. Fuel Distribution System Closure Report, Presidio of San Francisco, California,

Regional Water Quality Control Board, Order No. R2-2003-0080.

FUEL DISTRIBUTION SYSTEM REMOVAL REPORT
PRESIDIO OF SAN FRANCISCO, CALIFORNIA

Contract No. DACW05-95-D-0001
Task Order No. 0005
Work Authorization Directive No. 36

Submitted to:

Department of the Army
U.S. Army Corps of Engineers
Sacramento District
1325 "J" Street
Sacramento, California 95814-2922

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

FINAL

May 1999

Issued to:_____Date:_____

13.0 Section MT-9 (Station 59+00 to 67+00)

13.1 Introduction

Section MT-9 is located in the west-central part of the Presidio. A section map and photographs of work at Section MT-9 are provided as Figures 13-1 and 13-2, respectively.

The predominant features of this section are paved roadways (Hitchcock Avenue and California Highway 1), hills forested with eucalyptus, Monterey pine, and cypress trees, and assorted vine plant covering.

The FDS piping within Section MT-9 was oriented generally to the east. The piping extended from near Wright Loop to approximately 60 ft east of the California Highway 1 overpass.

Piping shown along Hitchcock Avenue on Figure 13-1 is part of Section BR5-3 and is discussed in Chapter 35 of this report.

Soil Description: Soils in the vicinity of Section MT-9 consist of fill, composed of loose, silty sand, with undifferentiated sheared rocks near the northwest corner of the section (MW, 1995a).

Groundwater Information: Groundwater in the vicinity of Section MT-9 is encountered at a depth of greater than 30 ft bgs from Stations 59 to 61. Groundwater is present only within bedrock fractures from Stations 61 to 67 (MW, 1995d). The majority of Section MT-9 is located within the Marina Groundwater Basin. The eastern part of Section MT-9 is located within the West Valley Groundwater Area (MW, 1995d).

13.2 Site Cleanup Requirements

Based on land use at Section MT-9, Stations 59 to 61, SALs for petroleum hydrocarbons and PAHs related to residential, terrestrial ecology and water quality criteria are shown in Table 13-1.

As groundwater is present only within bedrock fractures from Stations 61 to 67, there are no applicable SALs for soils deeper than 10 ft bgs in this area. Soil Action Levels for soils shallower than 10 ft bgs from Stations 61 to 67 are as shown in Table 13-1.

13.3 FDS Excavation

A total of approximately 800 ft of 6-inch diameter piping was removed or abandoned in Section MT-9. Details on the pipeline, trench and remedial excavations are discussed below.

13.3.1 Pipeline Removal and Abandonment

Details on pipeline removal and abandonment in Section MT-9 are as follows:

Removal: Approximately 740 ft of FDS pipeline was removed.

Abandonment: Approximately 60 ft of FDS piping was abandoned in place under the Highway 1 overpass at the east end of Hitchcock Avenue.

No report regarding pressure testing is available for the abandoned piping length. Analytical results for soil samples collected at both ends of the abandoned piping length indicated that concentrations of petroleum hydrocarbons and PAHs were below SALs.

13.3.2 Trench Excavation

Details on the trench excavation and backfill are as follows:

Trench dimensions: The trench in Section MT-9 was approximately 740 ft long. The average width of the trench was 2 ft and the average depth of the trench was 1.5 feet bgs, with a maximum depth of 4 ft bgs. Variations in average depth were due to changes in topography over the main trench length.

Backfill Information: With the exception of the area of Overexcavation No. 8 and the excavation southwest of Building 1305, the trench was backfilled using overburden materials from the excavation to 18 inches bgs and imported topsoil to the ground surface.

13.3.3 Remedial Excavations

Details on remedial excavations in Section MT-9 are as follows:

Station Range: Overexcavation No. 8 was conducted between Stations 61+90 and 62+35 (Figure 13-3). An additional remedial excavation was conducted southwest of Building 1305 between Stations 63+40 and 63+45 (Figure 13-4).

Final Excavation Dimensions: Overexcavation No. 8 consisted of two excavation pits separated by a tree stump. The western excavation was 24 ft long by 12 ft wide by 9 ft deep and the eastern excavation was 12 ft long by 12 ft wide by 11 ft deep.

The average dimensions of the excavation southwest of Building 1305 were 33 ft long by 10 ft wide by 3 ft deep, with a maximum depth of 3.5 ft bgs at its southern end.

Description of Excavation: Overexcavation No. 8 was located in the forested area west of Hitchcock Street and Building 1305. After initiating Overexcavation No. 8, excavation was temporarily discontinued due to the presence of nesting birds in trees within the planned excavation area. After nesting season ended , the trees were removed and additional excavation was conducted beneath and around the tree stumps. Approximately 535 ^{yd} of soil were removed during this excavation.

An additional remedial excavation was conducted within a group of young eucalyptus trees near the southwest side of Building 1305. Petroleum hydrocarbon-affected soil was limited to 3 ft bgs. Approximately 20 yd^3 of soil were removed during this excavation.

Following completion of the excavations, soil samples were collected from the excavation floors and sidewalls. Soil analytical results are discussed in Section 13.4.

The excavation areas were backfilled using treated soils from the LTTD unit to 2 ft bgs and imported top soil to the ground surface.

13.4 Soil Analytical Results

A list of soil samples representing soil that remained in place after piping removal/abandonment and remedial excavations, and corresponding sample depths and analytical results are provided in Table 13-2.

13.4.1 Immunoassay Analytical Results

Results of immunoassay analysis of soil samples for petroleum hydrocarbons and PAHs are provided in Table 13-2. The analytical results indicate that concentrations of petroleum hydrocarbons and PAHs in soils remaining in place are below the SALs.

13.4.2 Laboratory Analytical Results

Sample FM09060T01 represents soil remaining in place in the excavations and was submitted to an off-site laboratory for analysis. Analytical results are provided in Table 13-2. Analysis of sample FM09060T01 shows that concentrations of PAHs were less than applicable SALs.

13.4.3 Stockpile Analytical Results

Approximately 110 yd^3 of soil were excavated from the trench in Section MT-9. No stockpile samples were collected for immunoassay or laboratory analysis from Section MT-9. Stockpile soil samples were collected at a rate of one per 50 yd^3 of excavated trench soil for the entire FDS project.

13.5 Conclusions/Recommendations

The following is a summary of the closure criteria specifications for Section MT-9 of the FDS:

- Eight trench soil samples were collected per 740 ft of piping removed, satisfying the required frequency of 1 sample per 100 ft of trench, and included samples collected at each change in direction.

- Pressure testing data are unavailable for a 60-ft length under the Highway 101 overpass at the east end of Hitchcock Avenue. However, this piping has been grouted and analytical results for soil samples collected at both ends of the abandoned piping length indicated that concentrations of petroleum hydrocarbons and PAHs were below SALs. These samples adequately satisfy the frequency requirement of one sample per 50 ft of abandoned pipe (RWQCB, 1996).

- No samples were collected from the stockpiled excavated soil. Stockpile soil samples were collected at a project frequency of one per 50 yd^3 of excavated trench soil for the entire FDS removal. Because no petroleum hydrocarbons were detected above reporting limits in trench samples, it is unlikely that the stockpiled overburden soil in this section exceeded discharge criteria (refer to Chapter 3.8 for sampling guidelines). The overburden soil was re-used as backfill in the trench excavation.

- Twelve soil samples were collected along 57 linear ft of remedial excavations in Section MT-9, satisfying the required frequency of 2 samples per 15 linear ft of excavation.

- Concentrations of petroleum hydrocarbons (diesel and fuel oil ranges) and PAHs for soil remaining in place are below the SALs.

No further action is recommended for Section MT-9.

Table 13-1
Soil Action Levels, Section MT-9
Fuel Distribution System Removal Report

Presidio of San Francisco

Target Compound	Soil Action Level (mg/kg[a])	Criteria
Depth Range: 0-3 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	700	Ecological (terrestrial)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	980	Ecological (terrestrial)
Total Carcinogenic PAHs[b]	5.6	Human health (residential)
Depth Range: 3-10 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	1,380	Human health (residential)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	1,900	Human health (residential)
Total Carcinogenic PAHs	5.6	Human health (residential)
Depth Range: 10-25 feet below ground surface		
Petroleum Hydrocarbons as Diesel (C_{12} to C_{24})	15,000	Water quality (>5 ft above water table)
Petroleum Hydrocarbons as Fuel Oil (C_{24} to C_{36})	15,000	Water quality (>5 ft above water table)
Total Carcinogenic PAHs	-[c]	Water quality (>5 ft above water table)

[a]mg/kg - milligrams per kilogram
[b]PAHs - Polycyclic Aromatic Hydrocarbons
[c]Analysis for PAHs in this depth range not required (California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), 1996, *Site Cleanup Requirements for the Cleanup of Petroleum Impacted Soils, U.S. Army, Presidio of San Francisco*, Order Number 96-070, Oakland, California).

checked by: Tom Bang 4/12/99

approved by: [signature] 5-20-99

Table 13-2
Excavation Soil Analytical Results, Section MT-9
Fuel Distribution System Removal Report

Presidio of San Francisco
(page 1 of 2)

Sample Designation (depth)[a] date	Petroleum Hydrocarbons by EPA 8015 Modified[b] (mg/kg[c])		Total Petroleum Hydrocarbons by Immunoassay (mg/kg)	Carcinogenic PAHs[d] by EPA 8310[b] (mg/kg)						Total PAHs by Immunoassay (mg/kg)
	Diesel Range (C12-C24)	Fuel Oil Range (C24-C36)		Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Total Carcinogenic	
FM09059T01 (2.5) 5/14/97	NA[e]	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09060T01 (2.5) 5/19/97	103	<10	<115	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0095	<5.0
FM09061T01 (2.5) 5/19/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W02 (13.0) 5/5/97	NA	NA	<1,420	NA	NA	NA	NA	NA	NA	<5.0
FM09062W03 (8.0) 5/7/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W04 (6.0) 5/7/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W05 (5.0) 5/7/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W06 (11.0) 6/17/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W07 (6.0) 6/17/97	NA	NA	<575	NA	NA	NA	NA	NA	NA	<5.0
FM09062W08 (9.0) 6/17/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09062W09 (6.0) 6/17/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09063T02 (3.5) 5/28/97	NA	NA	575	NA	NA	NA	NA	NA	NA	<5.0
FM09063W01 (2.5) 6/17/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09063W02 (3.0) 6/17/97	NA	NA	<575	NA	NA	NA	NA	NA	NA	<5.0
FM09063W03 (3.5) 6/17/97	NA	NA	<355	NA	NA	NA	NA	NA	NA	<5.0

Table 13-2
Excavation Soil Analytical Results, Section MT-9
Fuel Distribution System Removal Report

Presidio of San Francisco
(page 2 of 2)

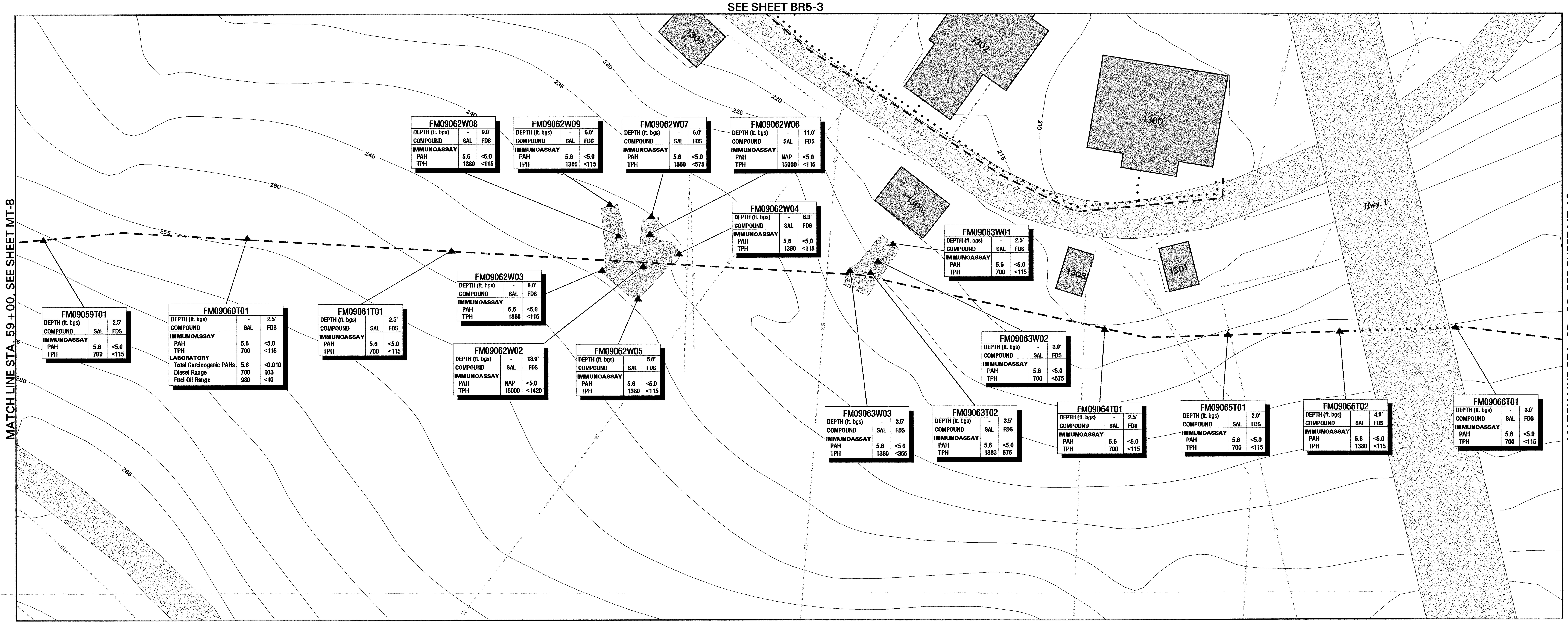
Sample Designation (depth) date	Petroleum Hydrocarbons by EPA 8015 Modified (mg/kg)		Total Petroleum Hydrocarbons by Immunoassay (mg/kg)	Carcinogenic PAHs by EPA 8310 (mg/kg)						Total PAHs by Immunoassay (mg/kg)
	Diesel Range (C12-C24)	Fuel Oil Range (C24-C36)		Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Total Carcinogenic	
FM09064T01 (2.5) 5/20/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09065T01 (2.0) 5/21/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09065T02 (4.0) 5/22/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0
FM09066T01 (3.0) 5/28/97	NA	NA	<115	NA	NA	NA	NA	NA	NA	<5.0

[a](depth) - Sample depth in feet below original ground surface
[b]U.S. Environmental Protection Agency, 1996, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Washington, DC.
[c]mg/kg - milligrams per kilogram
[d]PAHs - polycyclic aromatic hydrocarbons
[e]NA - not analyzed

checked by: C.P. 5/24/99
approved by: 5-21-99

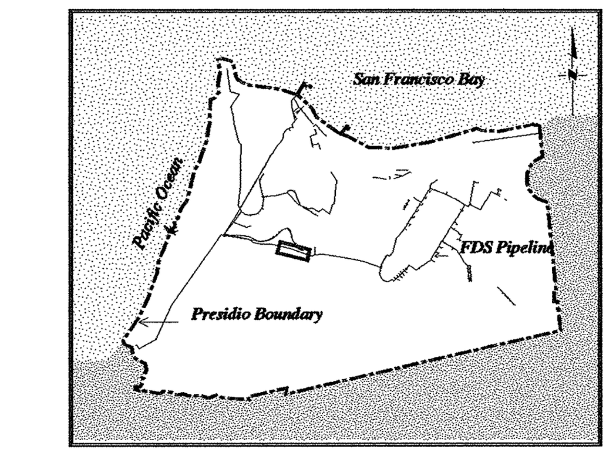
SEE SHEET BR5-3

MATCH LINE STA. 59+00, SEE SHEET MT-8



MATCH LINE STA. 67+00, SEE SHEET MT-10

PLAN VIEW



FDS INDEX MAP (DRAWN AT 1' = 60,000')

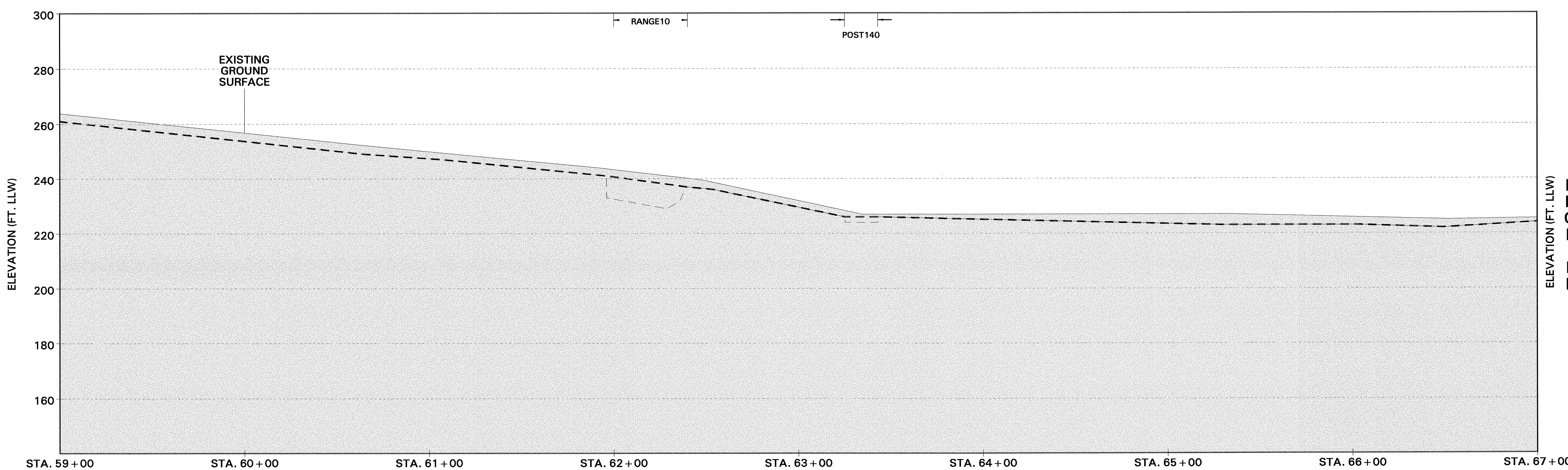
Legend:

E	Electric Line
G	Gas Line
IRR	Irrigation Line
SD	Storm Drain Line
SS	Sanitary Sewer Line
T	Telephone Line
W	Water Line
CT	Cable TV Line
FO	Fiber Optic Line
SL	Street Light Line
U	Unknown Line
XA	Abandoned Utility Line Letter Designates Utility Type A Designates Abandoned
	Pavement
	Building and Identification No.
	Excavation
	Limit of Excavation
	Removed FDS Pipeline
	Abandoned In Place FDS Pipeline
	Previously Removed FDS Pipeline
	Topographic Contour (Contour Interval: 5ft.)
	Fence
	Removed Structure (except tanks)
▲	Soil Sample
FB0112T02	Soil Sample Identification No.
POST018	LTTD Soil Sample Identification No.
NA	Not Analyzed
NAP	Not Applicable
SAL	Soil Action Level Established in SCRs (RWQCB, 1996)
RS	Immunoassay Result Superseded by Laboratory PAH Analysis

Notes:

1. Vertical Datum: Presidio Lower Low Water (LLW)
2. All concentrations in mg/kg unless noted otherwise
3. The area around removed pipeline was excavated to a width of 2.5-5 ft.
4. All soil samples collected from the final limit of excavation
5. If no LTTD sample identification no., trench backfilled with clean fill
6. Excavations backfilled with thermally treated soils (See table below for analytical results)

0 15 30
feet



PROFILE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 20'

LTTD Soil Sample Analytical Results		
Analyte (unit of measure)	POST140	RANGE10
Total Petroleum Hydrocarbons (mg/kg)	41	15 - 100
BETX (mg/kg)		
Benzene	<0.006	<0.006
Ethylbenzne	<0.006	<0.006
Toluene	<0.006	<0.006
Xylenes (total)	<0.006	<0.006
Total Carcinogenic PAHs (mg/kg)	NA	0.297 - 0.59
Immunoassay-PAHs (mg/kg)	<5.6	<5.6
SPLP (µg/l)		
Diesel Range	NA	<50
Gasoline Range	NA	<50
Benzene	NA	<0.5
Ethylbenzene	NA	<0.5
Toluene	NA	<0.5
Xylenes (m&p-)	NA	<0.5
Xylenes (o-)	NA	<0.5

RANGE 10 = Postpiles 119, 122, 123, 138-140

REVISION	DATE	DESCRIPTION	BY	BY
1	04-02-99	FDS PIPELINE REMOVAL, SUBMITTAL TO USACE		

MONTGOMERY WATSON

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: E. MAKHLOUF
DRAWN: I. KENNEDY
CHECKED:

PRESIDIO OF SAN FRANCISCO *CALIFORNIA*

REMOVAL / ABANDONMENT OF FUEL DISTRIBUTION SYSTEM PIPELINE
AS-BUILT
STATION 59+00 TO 67+00

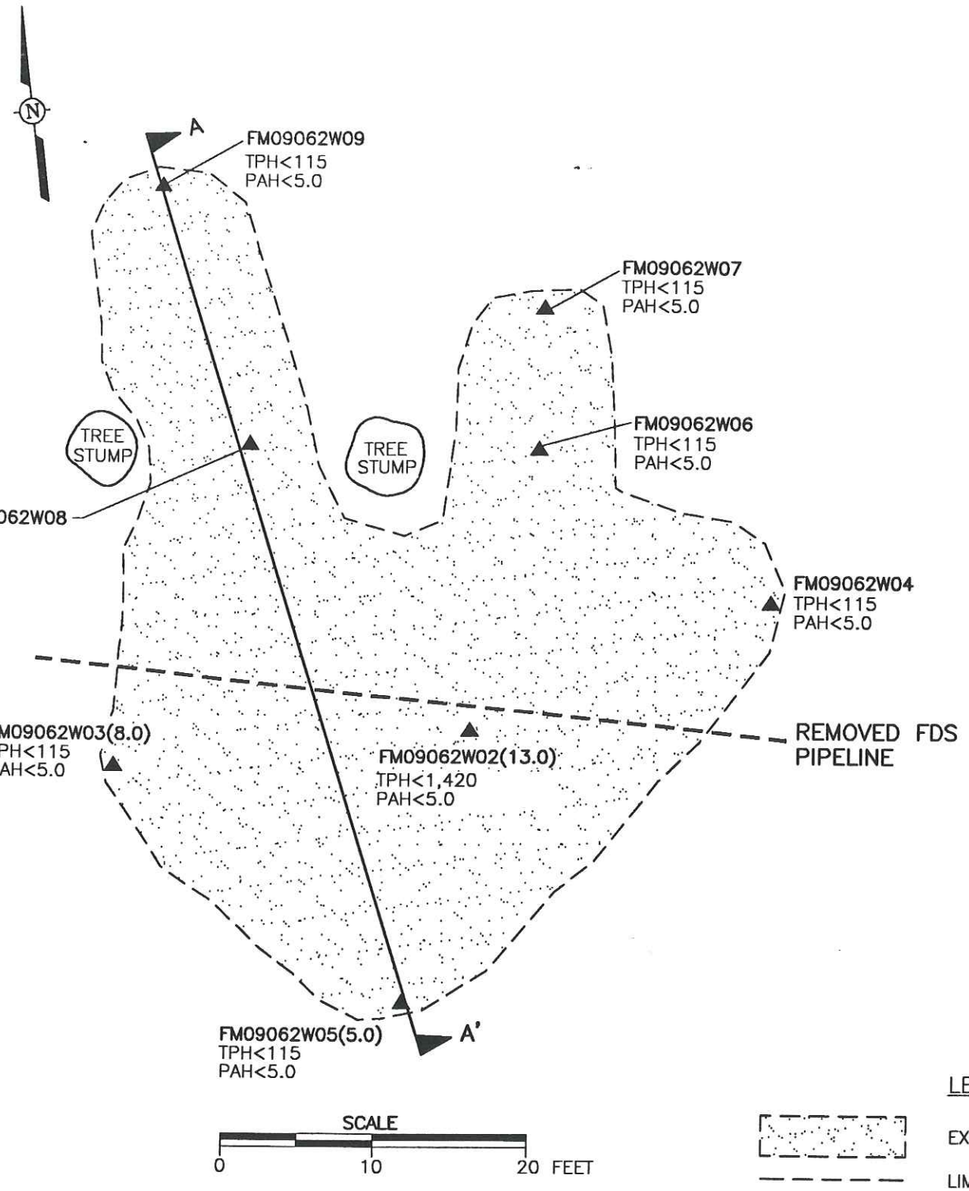
SUBMITTED:
DATE APPROVED:
SCALE:
SPEC. No.
SHEET MT-9
FILE No.

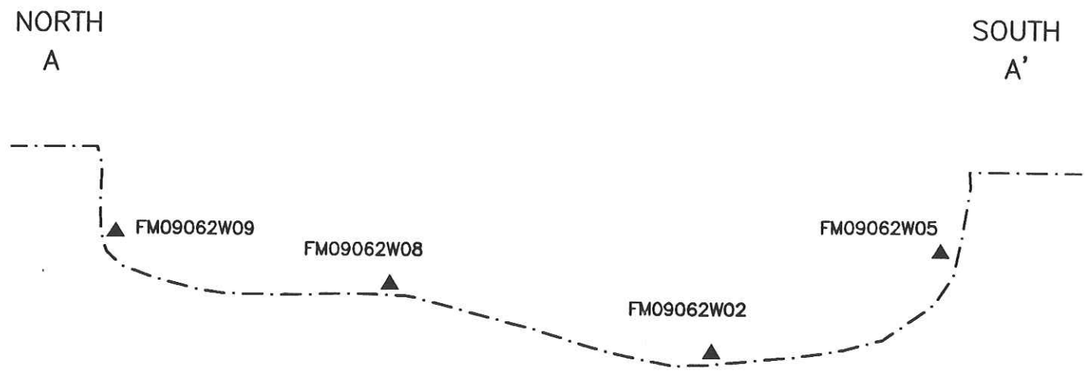
Figure 13-2 - Photographs, Section MT-9

Date: June 17, 1997
Excavating petroleum-affected soils southwest of Building 1305. Building 1302 is shown at center background.

Date: June 16, 1997

Soil excavation in progress near Overexcavation No. 8 (foreground).





CROSS SECTION A–A'

HORIZONTAL AND VERTICAL SCALE
0 10 20 FEET

LEGEND:

EXCAVATION

LIMIT OF EXCAVATION

REMOVED FDS PIPELINE

SOIL SAMPLE

FM09062W06(11.0) SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)

NOTES:

1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – POLYCYCLIC AROMATIC HYDROCARBONS

FIGURE 13–3

SECTION MT–9
OVEREXCAVATION NO. 8

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY	VJR 4/28/98	CHECKED BY	DEC 5-11-99
		APPROVED BY	PLL 5-20-99

DRAWING NUMBER 762491-B134

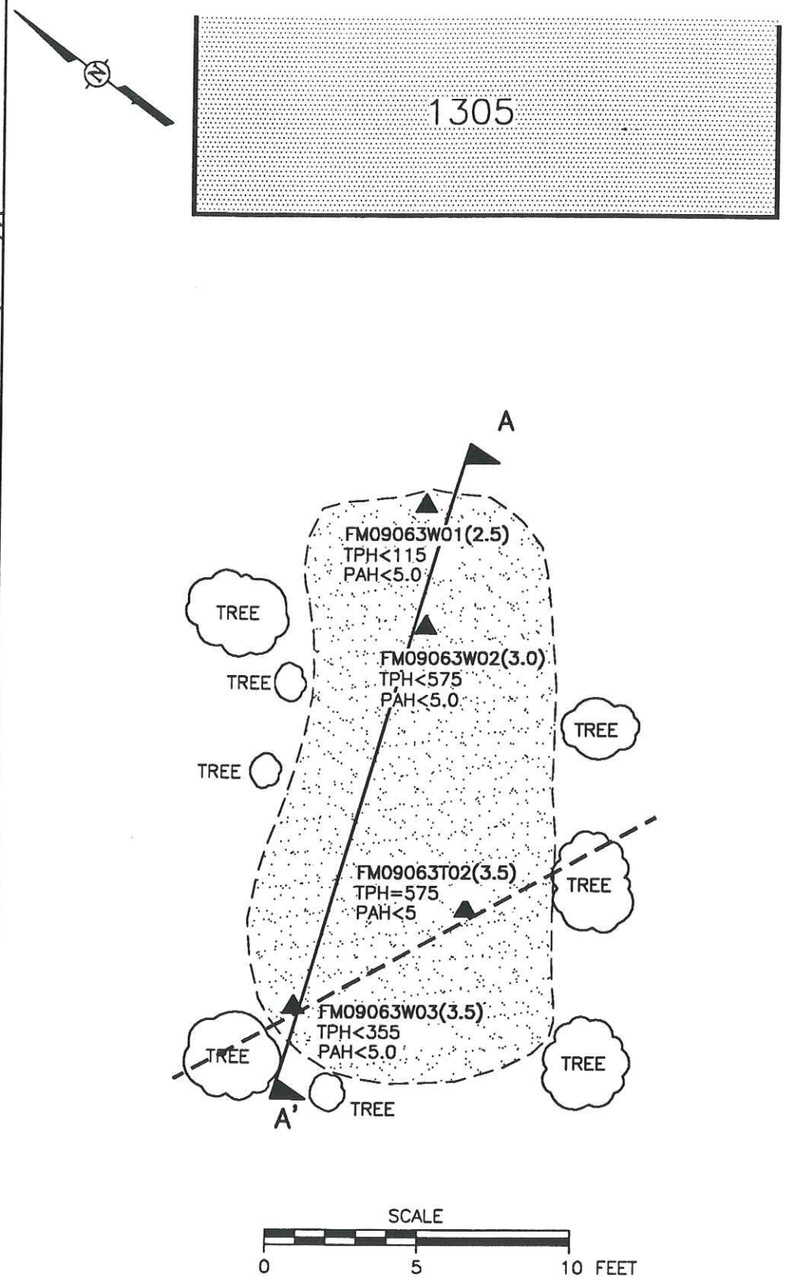
DACW05-D-95-0001
D.O. 0005, WAD 36

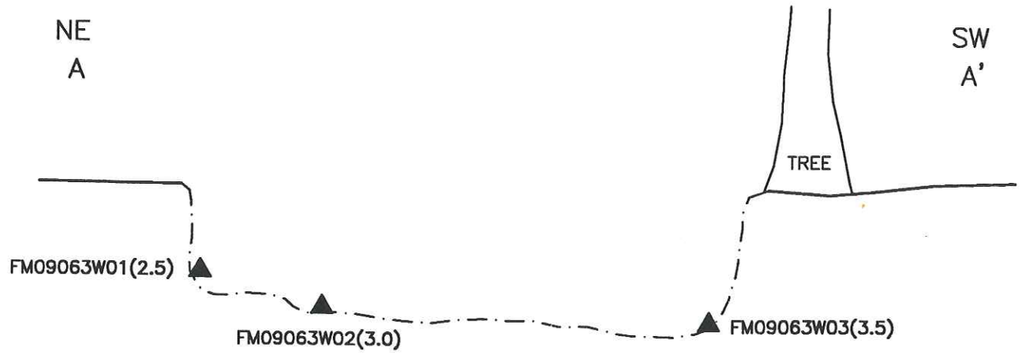
CONTRACT NUMBER

PRESIDIO OF SAN FRANCISCO
USACE SACRAMENTO DISTRICT TERC

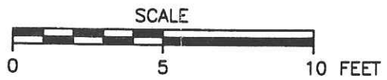
PREPARED FOR

PREPARED FOR	PRESIDIO OF SAN FRANCISCO USACE SACRAMENTO DISTRICT TERC	CONTRACT NUMBER	DACW05-D-95-0001 D.O. 0005, WAD 36	DRAWN BY
				T.R.S. 5/5/99
				CHECKED BY
				APPROVED BY
				DES MEL
				8-14-99 5-20-99
				DRAWING NUMBER 762491-B133





CROSS SECTION A–A'



LEGEND:

1305	BUILDING AND IDENTIFICATION NO.
	EXCAVATION
	LIMIT OF EXCAVATION
	REMOVED FUEL DISTRIBUTION SYSTEM PIPELINE
▲	SOIL SAMPLE
FM09063W01(2.5)	SOIL SAMPLE IDENTIFICATION NO. AND (DEPTH IN FEET)

NOTES:

1. ALL ANALYTICAL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
2. TPH – TOTAL PETROLEUM HYDROCARBONS
3. PAH – TOTAL POLYCYCLIC AROMATIC HYDROCARBONS

FIGURE 13–4

SECTION MT–9
EXCAVATION SOUTHWEST OF
BUILDING 1305

PRESIDIO OF SAN FRANCISCO

INTERNATIONAL TECHNOLOGY CORPORATION

Former Fuel Distribution System ("FDS") Area B Phases II and III Field Sampling Report and Phase II Closure Report

Presidio of San Francisco
California

February 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total
FDS Section MT-3														
MT-3SB01	MT-3SB01(2.5)	9/28/2007	2.5	HH-Res	HH-Res	overburden	660 Y	1,100	0.017 J	0.013 J	0.16	0.017 J	0.036	0.243
MT-3SB02	MT-3SB02(2.5)	9/28/2007	2.5	HH-Res	HH-Res	overburden	5 Y	31	0.0052 J	0.0046 J	0.0063 J	0.0021 J	0.0069 J	0.0251
MT-3SB03	MT-3SB03(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	9	0.013	0.013	0.023	0.0072	0.013	0.0692
MT-3SB04	MT-3SB04(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	6.7	0.0056	0.0059	0.0093	0.0031 J	0.0071	0.031
	DUP-1-092807	9/28/2007	2	HH-Res	HH-Res	overburden	<1.1	9.5	0.011	0.011	0.02	0.0057	0.012	0.0597
MT-3SB05	MT-3SB05(4.0)	9/28/2007	4	HH-Res	HH-Res	native	--	--	0.0054 J	0.0052 J	0.0072	0.0025 J	0.0062	0.0265
MT-3SB06	MT-3SB06(12.5)	9/25/2007	12.5	>5 GW	na	native	<1.2	<5.8	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
MT-3SB07	MT-3SB07(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	120 Y	280	**0.45**	**0.56**	**0.72**	0.28	0.53	2.54
MT-3SB08	MT-3SB08(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	1,200 Y	**2,400**	**0.58**	**0.72**	**1.1**	0.33	0.69	3.42
MT-3SB09	MT-3SB09(2.0)	9/28/2007	2	HH-Res	HH-Res	overburden	2 Y	18	0.042	0.047	0.068	0.02	0.054	0.231
FDS Section MT-4														
MT-4SB01	MT-4SB01(2.0)	9/25/2007	2	HH-Res	HH-Res	overburden	19 Y	70	--	--	--	--	--	--
MT-4SB02	MT-4SB02(2)	9/24/2007	2	HH-Res	HH-Res	overburden	41 Y	200	--	--	--	--	--	--
MT-4SB03	MT-4SB03(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	**12,000 Y**	**12,000**	--	--	--	--	--	--
MT-4SB04	MT-4SB04(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	13 Y	92	--	--	--	--	--	--
MT-4SB05	MT-4SB05(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	1.6 Y	13	--	--	--	--	--	--
MT-4SB06	MT-4SB06(2.0)	9/24/2007	2	HH-Res	HH-Res	overburden	<1.1	14 Y	--	--	--	--	--	--
FDS Section MT-5														
MT-5SB01	MT-5SB01(4.5)	9/24/2007	4.5	HH-Res	HH-Res	native	--	--	<0.0051	0.0037 J	0.0012 J	<0.0051	0.00073 J	0.00563
MT-5SB02	MT-5SB02(9.5)	9/25/2007	9.5	HH-Res	HH-Res	native	4.1	<5.1	<0.005	0.0033 J	<0.005	0.0024 J	<0.005	0.0057
FDS Section MT-9														
MT-9SB01	MT-9SB01(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	<1	6.6 Y	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
MT-9SB02	MT-9SB02(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	**830 Y**	**1,600**	<0.27	**0.082 J**	0.046 J	<0.27	<0.27	0.128
MT-9SB03	MT-9SB03(2.0)	10/1/2007	2	Eco-T	HH-Res	overburden	3.5 Y	6.8 Y	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
	DUP-1-100107	10/1/2007	2	Eco-T	HH-Res	overburden	1.9 Y	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
FDS Section MT-10														
MT-10SB01	MT-10SB01(0.5)	10/5/2007	0.5	Eco-T	HH-Rec	native	70 Y	130	<0.005	<0.005	0.0025 J	<0.005	0.00086 J	0.00336
>5 GW							**15,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

TABLE 4
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS FSP
San Francisco, California

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value. Plus sign indicates numerical value has high bias.
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater
<5 CF (Table 5) Soil Cleanup Levels for Crissy Field, < 5 feet above the hightest groundwater
<5 MCL (Table 4) Soil Cleanup Levels for the Protection of Water Quality at Drinking Water Standards, < 5 feet above the highest groundwater
Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream
Eco-SW (Table 6) Point-of-Compliance Concentrations for Soil and Water for Petroleum Hydrocarbons, BTEX, and MTBE for the Saltwater Protection Zone
Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section MT-3																						
MT-3SB01	MT-3SB01(2.5)	9/28/2007	2.5	HH-Res	0.016 J	0.037	<0.029	0.017 J	0.013 J	0.16	0.0088 J	0.017 J	0.036	0.0025 J	0.035	0.051	0.0065 J	<0.029	<0.029	0.028 J	0.035	0.243
MT-3SB02	MT-3SB02(2.5)	9/28/2007	2.5	HH-Res	<0.011	<0.011	<0.011	0.0052 J	0.0046 J	0.0063 J	0.0031 J	0.0021 J	0.0069 J	<0.011	0.0067 J	<0.011	0.0021 J	<0.011	<0.011	0.0045 J	0.01 J	0.0251
MT-3SB03	MT-3SB03(2.0)	9/28/2007	2	HH-Res	0.00081 J	<0.0053	<0.0053	0.013	0.013	0.023	0.01	0.0072	0.013	0.0031 J	0.017	<0.0053	0.0085	0.0048 J	0.00086 J	0.0057	0.015	0.0692
MT-3SB04	MT-3SB04(2.0)	9/28/2007	2	HH-Res	<0.0053	<0.0053	<0.0053	0.0056	0.0059	0.0093	0.0034 J	0.0031 J	0.0071	0.0011 J	0.0061	<0.0053	0.0029 J	<0.0053	<0.0053	0.0018 J	0.0067	0.031
	DUP-1-092807	9/28/2007	2	HH-Res	<0.0053	<0.0053	<0.0053	0.011	0.011	0.02	0.0082	0.0057	0.012	0.0024 J	0.014	<0.0053	0.007	<0.0053	<0.0053	0.0052 J	0.014	0.0597
MT-3SB05	MT-3SB05(4.0)	9/28/2007	4	HH-Res	<0.0058	<0.0058	0.0011 J	0.0054 J	0.0052 J	0.0072	0.0029 J	0.0025 J	0.0062	0.00091 J	0.0088	<0.0058	0.0025 J	<0.0058	<0.0058	0.0045 J	0.0097	0.0265
MT-3SB06	MT-3SB06(12.5)	9/25/2007	12.5	na	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058	<0.029
MT-3SB07	MT-3SB07(2.0)	9/28/2007	2	HH-Res	0.017	<0.011	0.044	**0.45**	**0.56**	**0.72**	0.22	0.28	0.53	0.083	0.52	0.012	0.22	0.006 J	0.015	0.18	0.54	2.54
MT-3SB08	MT-3SB08(2.0)	9/28/2007	2	HH-Res	0.018	<0.018	0.044	**0.58**	**0.72**	**1.1**	0.29	0.33	0.69	0.1	0.68	0.013 J	0.28	0.013 J	0.016 J	0.2	0.69	3.42
MT-3SB09	MT-3SB09(2.0)	9/28/2007	2	HH-Res	0.0029 J	<0.0054	0.0058	0.042	**0.047**	0.068	0.031	0.02	0.054	0.01	0.054	0.0025 J	0.026	0.003 J	0.009	0.026	0.056	0.231
FDS Section MT-5																						
MT-5SB01	MT-5SB01(4.5)	9/24/2007	4.5	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	0.0037 J	0.0012 J	0.00094 J	<0.0051	0.00073 J	<0.0051	<0.0051	<0.0051	0.00052 J	<0.0051	<0.0051	<0.0051	0.00092 J	0.00563
MT-5SB02	MT-5SB02(9.5)	9/25/2007	9.5	HH-Res	<0.005	<0.005	<0.005	<0.005	0.0033 J	<0.005	<0.005	0.0024 J	<0.005	<0.005	<0.005	0.00087 J	<0.005	<0.005	<0.005	<0.005	<0.005	0.0057
FDS Section MT-9																						
MT-9SB01	MT-9SB01(2.0)	10/1/2007	2	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	0.0047 J	<0.0051	0.0015 J	<0.0051	<0.0255
MT-9SB02	MT-9SB02(2.0)	10/1/2007	2	HH-Res	<0.27	<0.27	<0.27	<0.27	**0.082 J**	0.046 J	0.1 J	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	0.048 J	0.128
MT-9SB03	MT-9SB03(2.0)	10/1/2007	2	HH-Res	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
	DUP-1-100107	10/1/2007	2	HH-Res	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
FDS Section MT-10																						
MT-10SB01	MT-10SB01(0.5)	10/5/2007	0.5	HH-Rec	<0.005	<0.005	<0.005	<0.005	<0.005	0.0025 J	0.001 J	<0.005	0.00086 J	<0.005	0.00089 J	<0.005	0.00045 J	<0.005	<0.005	<0.005	0.0014 J	0.00336
FDS Section MT-11																						
MT-11SB01	MT-11SB01(2.0)	10/5/2007	2	HH-Rec	<0.005	<0.005	<0.005	<0.005	0.0035 J	0.0014 J	0.001 J	<0.005	0.001 J	<0.005	<0.005	<0.005	0.00062 J	<0.005	<0.005	<0.005	<0.005	0.0059
MT-11SB02	MT-11SB02(2.0)	10/5/2007	2	HH-Rec	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.026
MT-11SB03	MT-11SB03(2.0)	10/5/2007	2	HH-Rec	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0255
MT-11SB04	MT-11SB04(2.0)	10/5/2007	2	HH-Rec	<0.0052	0.0029 J	<0.0052	<0.0052	<0.0052	0.0069	<0.0052	<0.0052	0.0007 J	<0.0052	<0.0052	0.0025 J	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	0.0076
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

TABLE 6
SUMMARY OF SOIL RESULTS FOR PAHS
Presidio FDS FSP
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	PAHs Criteria	Analytical Results (mg/kg - dry weight)																	
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	2-methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Carcinogenic PAHs, Total
FDS Section MT-15																						
MT-15SB03	MT-15SB03(3.5)	9/28/2007	3.5	HH-Res	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.00088 J	<0.0055	<0.0055	<0.0055	<0.0055	0.00096 J	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055	0.0012 J	0.00088
FDS Section MT-16																						
MT-16SB01	MT-16SB01(1.5)	9/26/2007	1.5	HH-Res	<0.027	<0.027	<0.027	0.006 J	0.011 J	0.017 J	0.014 J	0.0059 J	<0.027	<0.0277 J	0.0077 J	<0.027	<0.0277 J	0.027 J	<0.027	0.0069 J	0.011 J	0.0399
MT-16SB02	MT-16SB02(1.5)	9/26/2007	1.5	HH-Res	<0.0059	0.0089	0.0036 J	0.018	0.029 J	0.034 J	0.034 J	0.0095 J	0.019	0.0067 J	0.0092	<0.0059	0.023 J	0.0059 J	<0.0059	0.003 J	0.02	0.11
MT-16SB03	MT-16SB03(1.5)	9/26/2007	1.5	HH-Res	0.00088 J	0.0015 J	0.0053 J	0.019	0.021	0.028	0.013 J+	0.012	0.026	0.012	0.028	0.0012 J	0.015	0.0043 J	0.0024 J	0.017	0.035	0.106
FDS Section MT-17																						
MT-17SB03	MT-17SB03(3.5)	9/27/2007	3.5	HH-Res	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.028
HH-Rec					**na**	**na**	**13,800**	**1**	**0.1**	**1**	**1,400**	**1**	**10**	**na**	**1,900**	**1,800**	**na**	**na**	**1,100**	**1,400**	**1,400**	**13**
HH-Res					**na**	**na**	**5,900**	**0.43**	**0.04**	**0.43**	**620**	**0.43**	**4.3**	**na**	**820**	**770**	**na**	**na**	**480**	**600**	**620**	**5.6**

Abbreviations:
"--" - not analyzed
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
PAHs - Polynuclear Aromatic Hydrocarbons
CI - see narrative
J - estimated value
Y - chromatographic pattern does not resemble standard

Notes:
Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Former Fuel Distribution System ("FDS") Area B Phase III Field Sampling and Closure Report

Presidio of San Francisco
California

October 2009

Prepared By:

Erler & Kalinowski, Inc.
Burlingame, California

EKI A70004.16

TABLE 3
SUMMARY OF SOIL RESULTS FOR TPH AND CARCINOGENIC PAHS
Presidio FDS
San Francisco, California

Sample Location	Sample ID	Sample Date	Sample Depth (ft bgs)	TPH Criteria	PAHs Criteria	Sample Type	Analytical Results (mg/kg - dry weight)							
							TPHs		Carcinogenic PAHs					
							TPH Diesel	TPH Fuel Oil	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Carcinogenic PAHs, Total (Note 1)
FDS Section MT-9														
MT-9SB04	DUP1-060809	6/8/2009	2	Eco-T	Eco-T	Overburden	48 Y	62	<0.0052	<0.0052	<0.0052	<0.0052	0.0011 J	<0.0219
	MT-9SB04	6/8/2009	2	Eco-T	Eco-T	Overburden	66 Y	84	<0.0052	0.0027 J	0.0025 J	0.0017 J	0.0022 J	<0.0143
MT-9SB05	MT-9SB05	6/8/2009	2	Eco-T	Eco-T	Overburden	52 Y,J-	88	<0.0053	<0.0053	0.002 J	<0.0053	0.0019 J	<0.0198
MT-9SB06	MT-9SB06	6/8/2009	2	Eco-T	Eco-T	Overburden	200 Y	170	<0.0053	0.0012 J	0.0017 J	<0.0053	0.0015 J	<0.015
MT-9SB07	MT-9SB07	6/8/2009	2	Eco-T	Eco-T	Overburden	120 Y	140	0.0028 J	0.004 J	0.0052 J	0.0032 J	0.0056	0.0208
>5 GW							**10,000**	**15,000**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-FW							**140**	**140**	**na**	**na**	**na**	**na**	**na**	**na**
Eco-T							**700**	**980**	**na**	**0.3**	**na**	**na**	**na**	**na**
HH-Rec							**3,200**	**4,500**	**1**	**0.1**	**1**	**1**	**10**	**13**
HH-Res							**1,380**	**1,900**	**0.43**	**0.04**	**0.43**	**0.43**	**4.3**	**5.6**

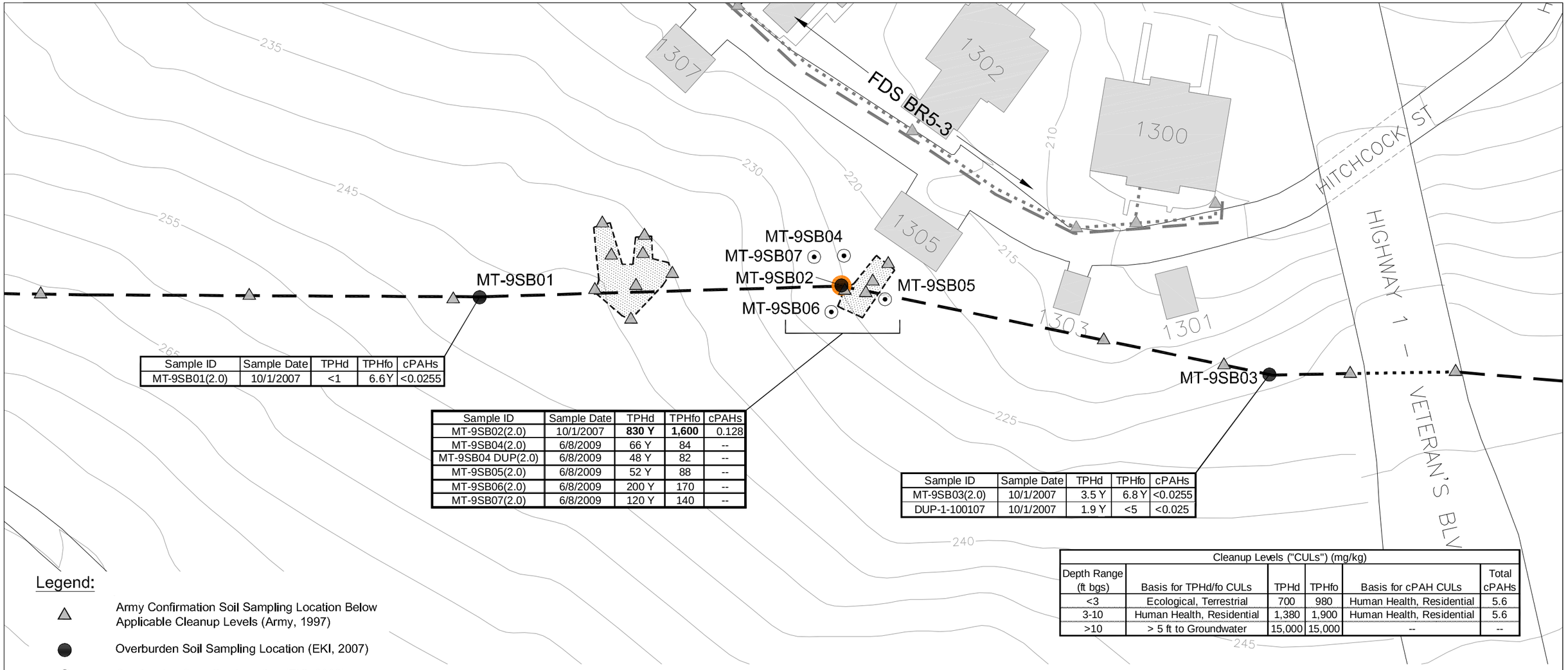
Abbreviations:
<0.50 - Compound not detected at or above indicated laboratory reporting limit
ft bgs - feet below ground surface
mg/kg - Milligrams per kilogram
na - not applicable
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
J - estimated value
Y - chromatographic pattern does not resemble standard

Abbreviations for Cleanup Levels from Water Board Order R2-2003-0080:
>5 GW (Table 3) Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels, > 5 feet above the highest groundwater

Eco-FW (Table 7) Point-of-Compliance Concentrations for Soil and Water for gasoline and BTEX in Surface Water and Sediments of the Proposed Freshwater Stream

Eco-T (Table 2) Soil Cleanup Levels for the Protection of Ecological Receptors, Terrestrial Receptors
HH-Rec (Table 1) Soil Cleanup Levels for the Protection of Human Health, Recreational
HH-Res (Table 1) Soil Cleanup Levels for the Protection of Human Health, Residential

Note:
1. Total carcinogenic PAHs were summed manually from individual carcinogenic PAHs. To be conservative, the detection limit or estimated value for each compound was summed to calculate the total concentration.



Sample ID	Sample Date	TPHd	TPHfo	cPAHs
MT-9SB01(2.0)	10/1/2007	<1	6.6Y	<0.0255

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
MT-9SB02(2.0)	10/1/2007	**830 Y**	**1,600**	0.128
MT-9SB04(2.0)	6/8/2009	66 Y	84	--
MT-9SB04 DUP(2.0)	6/8/2009	48 Y	82	--
MT-9SB05(2.0)	6/8/2009	52 Y	88	--
MT-9SB06(2.0)	6/8/2009	200 Y	170	--
MT-9SB07(2.0)	6/8/2009	120 Y	140	--

Sample ID	Sample Date	TPHd	TPHfo	cPAHs
MT-9SB03(2.0)	10/1/2007	3.5 Y	6.8 Y	<0.0255
DUP-1-100107	10/1/2007	1.9 Y	<5	<0.025

Cleanup Levels ("CULs") (mg/kg)					
Depth Range (ft bgs)	Basis for TPHd/fo CULs	TPHd	TPHfo	Basis for cPAH CULs	Total cPAHs
<3	Ecological, Terrestrial	700	980	Human Health, Residential	5.6
3-10	Human Health, Residential	1,380	1,900	Human Health, Residential	5.6
>10	> 5 ft to Groundwater	15,000	15,000	--	--

Legend:

- Army Confirmation Soil Sampling Location Below Applicable Cleanup Levels (Army, 1997)
- Overburden Soil Sampling Location (EKI, 2007)
- Overburden Sampling Location (EKI, 2009)
- FDS Pipeline (Abandoned in Place)
- FDS Pipeline (Previously Removed by Army from 1996-1999)
- Historical Excavation Area
- Soil Sample Above Applicable Cleanup Levels

Abbreviations:

cPAHs	= carcinogenic Polycyclic Aromatic Hydrocarbons
FDS	= Fuel Distribution System
TPHd	= Total Petroleum Hydrocarbons as Diesel
TPHfo	= Total Petroleum Hydrocarbons as Fuel Oil
Y	= Chromatographic Pattern does not Resemble Standard

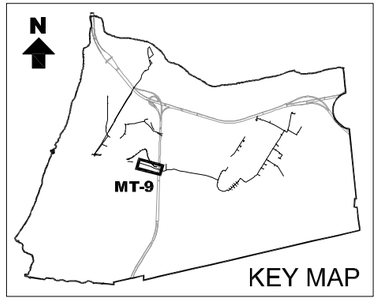
Notes:

1. All locations are approximate.
2. Basemap source: Presidio Trust, 2006 - FDS Pipeline Location digitized from Montgomery Watson, April 1999.
3. FDS trench locations were adjusted based on observations of trench scars in the field and survey coordinates of samples taken along former trench.
4. Reported chemical concentrations above applicable soil cleanup levels are in **bold**.
5. All concentrations in milligrams per kilogram ("mg/kg").

0 50 100

(Approximate Scale in Feet)

N



KEY MAP

Erler & Kalinowski, Inc.

Soil Sampling Results at
Fuel Distribution System
Section MT-9

Presidio Trust
San Francisco, CA
October 2009
EKI A70004.16

Figure 4

20091001,14301766 C:\A70004.16\Oct09\Figure 04.dwg MT-9